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Follow the leader

Executives tell us what it takes to be an IT leader. **82**

When giants collide

Meshing IT threatens big mergers. **Supplement follows page 44.**

Guilt-free solitaire

Companies tailor computer games to train young workers. 39

COMPUTERWORLD

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SKY KING
Herb Kelleher,
CEO of Southwest
Airlines

DANNY TURNER

Herb Kelleher fosters a corporate culture that is "high-touch, low-tech" yet rolls out sophisticated systems when the business need arises. Senior editor Kathleen Melymuka profiles the sometimes zany, always pragmatic airline CEO.

Managing, page 68

The service advantage

IT MOVES MANUFACTURERS BEYOND CORE PRODUCTS

By Julia King

POOF! INFORMATION technology is morphing some of the largest industrial product giants into high-tech service companies.

Sure, General Electric Corp. still manufactures aircraft engines. But it also sells to Southwest Airlines "power by the hour," a service that involves electronically monitoring engine performance in flight and tracking all maintenance and repair data.

GE's Dan Smith says IT plays a critical role in expanding the company's service business

Similarly, Goodyear Tire & Rubber Co. still makes tires. But it also provides truck manufacturer Navistar International Transportation Corp. with a full-blown automated supply-chain service that includes delivering mounted tires sequenced for just-in-time use on Navistar's automated assembly lines.

"More and more, product companies are finding that to be successful in their market, they have to move upstream to provide services," said Michael Corbett, president of Corbett &

Service, page 98

'See, Judge, Win 95 is like a car...'

By Kim S. Nash

IN COMPUTER industry lawsuits, the right analogy to explain a technical issue often can affect the outcome of the case. And so it will be next month in the Microsoft Corp. antitrust trial.

Already, the players involved — Microsoft on one side, and the U.S. Department of Justice and 20 states on the other — have traded a dozen different analogies in a tense exchange of

Win 95, page 99

Customer data faces rough road to factory

▸ *How do you use info and keep it private?*

By Craig Stedman

FOR MANY manufacturers, using technology to collaborate with customers on setting production plans is becoming a new business mecca. But a big question remains: How the heck do they get there?

Few manufacturers have fully mapped out a way to automatically feed customer-supplied sales forecasts to their production planning systems, said technology users and analysts. Companies looking to lower manufacturing costs through collaboration face both technical and business obstacles, including the thorny task of convincing customers that sensitive data won't be seen by rival eyes.

Take Riverwood International Corp. The Atlanta-based maker of paperboard and packaging products is working to set up collaborative forecasting links with two unidentified customers, with target go-live dates in February or March.

Customer data, page 16

Web sites add content to boost sales

By Sharon Machlis

FOR ALMOST A DECADE, Richard Frank was president of Walt Disney Studios, overseeing box-office hits such as *Pretty Woman* and the billion-dollar smash *The Lion King*. Now, the savvy business veteran heads a San Francisco-based Internet company called Cybermeals — a recent example of electronic-commerce sites venturing into entertainment and news.

Increasingly, online retailers are looking to beef up their content as a way to attract consumers amid the clutter of World Wide Web sites and to

Web, page 98

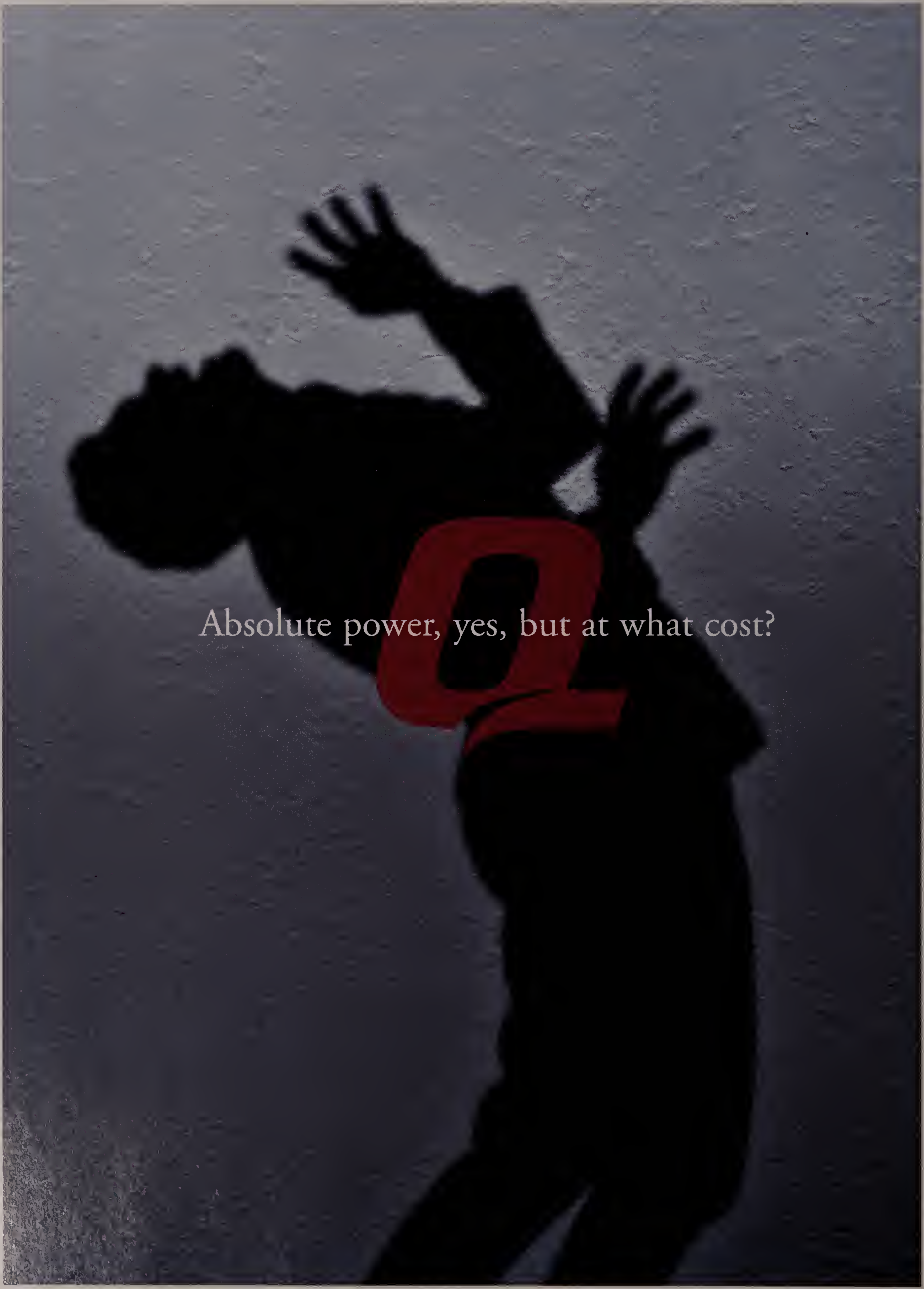
NEWSPAPER

JAMES WASSERMAN

Capital Blue's Scott Culbertson

Ouch! Many year 2000 compliance teams have been slapped by **hidden costs.** Yet when ***Computerworld*** asked IS professionals such as Scott Culbertson (left) about the benefits stemming from year 2000 efforts, most could report **unexpected gains:** the chance to replace old systems, beef up existing systems, **streamline IT operations** and improve inventory.

Review Center, page 75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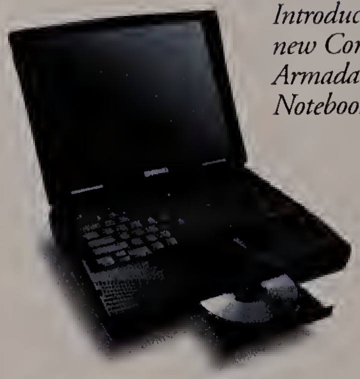
NOTEBOOKS



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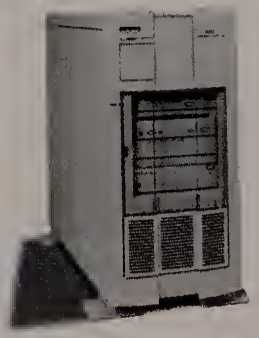

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Stats analysis can help predict Super Bowl TDs. **Corporate Strategies, page 39**

Virtual firms are giving way to E-Business Communities, Don Tapscott writes. **Page 37**

Virginia can be either feast or famine for IT people. **IT Careers, 84**

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ETC.

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YEAR 2000

4 6 0
days to
2000

Manufacturer retains year 2000 staffers with frequent-flier-like bonus plan that rewards them for every quarter on the job. **4**

Your only hope is to shut off all systems on New Year's Eve 1999, Frank Hayes writes. **12**

Y2K projects have hidden costs, but some unexpected benefits, too. **Review Center, 75**

2000 is just the beginning, John Gantz warns. We'll be fixing dates for 50 years. **33**

EXECUTIVE Briefing

News summary for senior managers

- The line between those who sell information and those who sell hard goods across the Internet is becoming blurred as retailers add content to make sites more attractive and content providers start hawking goods. Supermodel Kathy Ireland offers advice and chat at Kmart's site, and Lands' End has stories from Jim Fowler (former chief wildlife subduer for *Mutual of Omaha's Wild Kingdom*) and updates on a viking voyage. Analysts say good content can be a major draw, but it's hard to come by. Retailers must be careful not to post infomercials, or risk alienating customers. Page 1

- A General Accounting Office audit of 24 federal agencies found none adequately protects sensitive information, and the U.S. Department of Veterans Affairs is particularly vulnerable. Physical security at the VA is poor, and the agency can't even tell if its data is misused. VA officials promise to respond. Page 4

- Chrysler's technical services unit is moving several thousand workers from Unix to less-expensive Windows NT machines but will leave high-end design apps on Unix. The port of a key design application to NT helped Chrysler make the decision, which it expects will save money on hardware, support and training. Page 6

- The year 2000 problem is bad enough, but following on its heels will be similar field-length dilemmas such as the conversion to the euro, turnover in the Global Positioning System time system and the need to use more than 10 digits in phone numbers, writes John Gantz, who predicts it will take 50 years to fix it all. Page 33

- Southwest Airlines CEO Herb Kelleher is zany, but his common-sense attitude toward technology has helped keep the company flying high. He demands that technology be simple and useful, inspiring projects such as the electronic ticket Southwest invented and the decision to buy only one model of plane to keep down maintenance costs. IS people have a license to experiment but have to prove results to a "low-tech" boss with a hands-on attitude — and a tendency to imitate Elvis. Page 68

- Bankers Trust has turned computer games into training tools for young employees, who can often absorb information better in contest form. A Doom-like interface teaches rules for selling financial vehicles, and Sexual Harassment Solitaire lays out the cards on office behavior. Page 39

- Ever get a bizarre error message on your computer? Ben Ezzell got hundreds of examples in the mail when he held a contest for the worst one; then he put them all in a book. Some call users bad names, some just lack a point — but all demonstrate how out of touch some programmers are with users. Page 80

Online this week

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Incentives keep Y2K staff in the fold

Even small gifts can boost morale, build loyalty

By Barb Cole-Gomolski

IT'S THE END of another quarter, and that means it's time for the year 2000 team at C. R. Bard, Inc. to go shopping.

The Murray Hill, N.J., company has a year 2000 retention program that lets team members rack up points for every quarter they work on the project. The points can be redeemed for prizes — everything from mountain bikes to kitchen appliances.

The frequent-flier-like program has helped the medical supply manufacturer hold on to its 24-person year 2000 staff for more than a year, with no defections.

"This is a low-cost way to keep people interested in the project," said Paul Maszczak, director of information technology at Bard. He said the program costs $1,000 to $2,000 per year for each staffer.

With year 2000 deadlines looming, some companies are creating special retention programs to keep their millennium experts from leaving.

"Anyone who loses their Y2K staff now is going to be in big trouble," said Stephanie Moore, an analyst at Giga Information Group in Norwalk, Conn. While most companies offer monetary bonuses for employees who stay through the millennium, more are looking beyond dollars to keep workers in place.

Moore said one of her clients lets the year 2000 programmer with the cleanest code of the week use a company sports car for the weekend. Another information systems shop regularly pays for year 2000 team members to go out to dinner, footing the bill for the meal as well as for baby-sitters. In many cases, employees are being promised training in exchange for working on the year 2000 project.

A LASTING REMINDER

"If you reward with cash, it's spent and gone," said Gerard Walsh, chief information officer at Special Recognition, Inc., a Whitehouse Station, N.J.-based consultancy that helps companies set up IS staff retention plans. Walsh said handing out points that can be redeemed for products is a better way to foster loyalty.

"If someone gets a mountain bike, they will remember their company every time they ride that bike," Walsh said.

Several of Walsh's clients routinely hand out to staffers commemorative year 2000 merchandise, including flight jackets, gym bags, hats and golf shirts.

"It sounds silly because these are really small gifts, but they really help build morale," Maszczak said.

One of the biggest hits so far has been a millennium countdown clock, Maszczak added.

Sue Kozik, chief technology officer at Penn Mutual Insurance Co. in Horsham, Pa., said she avoids singling out staffers working on the year 2000 project with special perks. But Kozik said she has been able to keep turnover low by outsourcing most of the remediation work. So contractors focus on the mundane coding while staffers handle the acceptance testing, she said.

Other IS managers said they have tried to implement specialized retention plans for workers on the year 2000 project, but they couldn't get approval from human resources departments and didn't have the money in their own budgets to do it.

"From a human resources point of view, there is a reluctance to differentiate the year 2000 staff from the rest of IS," said Boyd McCleary, director of the year 2000 project at St. Francis Healthcare Services, which runs two hospitals in Honolulu. □

RETENTION-GETTERS

Unique ways to keep year 2000 project members happy include:

- Offering training after completing the year 2000 project
- Awarding team members points that can be redeemed for prizes
- Giving out commemorative year 2000 merchandise to team members

---

Don't forget to test year 2000 work

By Cynthia Bournellis
BURLINGAME, CALIF.

YOU MAY BE almost done fixing year 2000 problems in your company's code base and ready to move on to something you actually want to do. But many companies near the millennium finish line are adding one more step to their year 2000 remediation effort: compliance verification.

The payoff is more emotional than quantifiable, some users said, but still very valuable.

Consider Fran Brown, a support project leader for year 2000 code remediation at the Foster Farms chicken processing plant in Livingston, Calif. She attended the Year 2000 Conference here last week explicitly to find tools to test code for the 35 mainframe applications used to run the processing plant.

Brown said testing is a big part of the validation process. "Once we test the code, we want someone to check it to see if we've missed anything. . . . It's comforting to know that this will get done through validation," she said.

Validation may bring a level of comfort to many businesses. But there are bigger issues driving the trend.

For Prudential Life Insurance Company of America, off-loading a portion of its 170 million lines of code to a service provider frees up internal developers to focus on implementing new technologies, said Irene Dec, the insurer's vice president of information systems.

Prudential is on its second validation of 260,000 lines of code out of 130 million that already have been tested and fixed. Dec said periodic reviews of data also put a stamp of quality on the company's products and services. "Validation is another step we've taken to increase quality and reduce another [possible] chance of failure."

At Computer Horizons Corp., a large consulting firm in Mountain Lakes, N.J., with nearly a third of its business in year 2000 remediation, validation has become the hot millennium-related demand. "The biggest thing is documenting the code that was changed," said David Reinhold, the firm's senior vice president.

HAPHAZARD TESTING

But not all businesses pay as much due diligence as companies such as Prudential. "It's very spotty that commercial businesses will do a second-level test," said Susan Thomas, worldwide director of the Team 2000 program, a consulting group at Unisys Corp. in Blue Bell, Pa.

She said companies have become lax for two reasons. First, government doesn't mandate testing for the commercial sector. Second, the code generally passes muster on the first test, so information technology staffers don't see any reason to do it again.

Thomas said that although many chief information officers encourage validation, they are met with resistance from lower-level managers.

"This has to be top-down-driven," she advised. "[But] if you haven't done it by now, you should be sweating, or at least seriously embracing it."

Furthermore, validation has to be performed where it makes the most sense. And when it comes to the networking arena, the process could be a nightmare for IT. "The network side is very detailed," said Mark Bouchard, an analyst at Meta Group, Inc. in Reston, Va.

He said IT would have to address network management applications, scripting, voice networking hardware and electronic-commerce applications that touch back-end data sources. "In this case, everything has to be remediated. [IT doesn't] have the resources to pull it off," Bouchard said. □

GAO slams federal security

By Sharon Machlis

INADEQUATE SYSTEMS management at the U.S. Department of Veterans Affairs "place critical VA operations . . . at risk of misuse and disruption," a government audit has concluded.

In a report released last week, the General Accounting Office said the VA might not even be able to detect if its data was improperly used or destroyed.

But the VA is hardly alone in facing computer security problems. In a separate report, the GAO reviewed two years of auditing across the federal government and noted that "significant information security weaknesses were reported in each of the 24 largest federal agencies, with inadequately restricted access to sensitive data being the most widely reported problem.

"This," the report continued, "and the other types of weaknesses identified, place critical government operations such as national defense, tax collection, law enforcement and benefits payments . . . at great risk of fraud, disruption and inappropriate disclosures."

In studying the Veterans Department specifically, the report, called "VA Computer Control Weaknesses Increase Risk of Fraud, Misuse and Improper Disclosure," cited the following:

- Poor management of user identifications and passwords.
- Ineffective safeguards against unauthorized data access by people inside and outside the agency.
- Inadequate monitoring for suspicious activities.

Other "serious weaknesses in controls over access to VA compute resources" weren't outlined in the public report. Those secret details were given to a limited distribution list within the government.

Thousands of VA users had broad access to sensitive medical and benefits data, GAO auditors said, and IDs remained active after employees left or transferred. More than a hundred IDs for one mainframe system didn't even need passwords.

The GAO also said that basic physical security, such as controlling access to computer rooms, needed to be improved.

In a written response, Dennis Duffy, the VA's assistant secretary for policy and planning, said his agency "is taking immediate actions to correct these deficiencies and is instituting oversight mechanisms to ensure that such a breakdown in the protection of our financial, veterans' benefit, veterans' health and employee data systems does not recur." □

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Chrysler engineers to use NT workstations

▸ *Low-cost option replacing Unix systems*

By Jaikumar Vijayan

WHEN CHRYSLER CORP. does one of its periodic technology upgrades early next year, there is at least one thing it will be doing for the first time.

In a move the company says will help reduce operational costs, Chrysler has decided to pull the plug on more than 3,600 Unix workstations and replace them during the next three years with nearly 4,000 Windows NT workstations running on Intel Corp. hardware.

Chrysler's technical services unit will use the new systems to run crucial design and engineering applications. A small core of Unix workstations will continue to power Chrysler's high-end design applications, such as ultrarealistic solid renditions of future cars.

The company won't say how much it hopes to trim in operations costs by moving from Unix to NT at the low end. But the savings will come from reduced systems costs as well as lower support and training costs, said Norman Powell, manager of technical services at Chrysler in Auburn Hills, Mich.

Savings also will accrue from the lower cost of ownership of having a single hardware platform to run both workstation and office applications, such as word processing, Powell said.

Chrysler's Norman Powell says the savings from moving to NT from Unix will come from reduced systems costs as well as lower support and training costs.

Chrysler's endorsement of Windows NT highlights the growing influence of the Wintel platform in markets long considered to be bastions for Unix workstation applications, such as the automotive and aerospace industries, said Dan Dolan, an analyst at Dataquest in San Jose, Calif.

"Unix will still be used for the high-end . . . but moving forward, NT is going to be good enough for a lot of other [workstation] applications," such as computer-aided design, manufacturing and engineering," Dolan said.

Framingham, Mass.-based market research firm International Data Corp. (IDC) pegs the installed base of Windows NT workstations to grow at more than 49% between 1995 and 2002. IDC is a sister company of *Computerworld*.

MOTIVATING FACTORS

Powering that growth are the lower-cost of Wintel boxes in comparison with traditional Unix/RISC systems and the rapidly growing availability of applications that were once available only on Unix, said Greg Weiss, an analyst at D. H. Brown Associates, Inc. in Port Chester, N.Y.

A critical factor influencing Chrysler's move to NT, for instance, was the porting to NT of a Unix engineering and design software application called CATIA, from Dassault Systemes in France.

Reasons such as those have influenced Animation House, Inc. in Evansville, Ind., to convert to NT workstations, said Gary Davis, president of Animation House.

Two years ago, the animation studio was nearly an all-Unix shop with workstations from Silicon Graphics, Inc., Hewlett-Packard Co. and Digital Equipment Corp. Today, more than 90% of the company's applications run on NT.

"The single most obvious reason for us has been the availability of tools" that have helped cut down on development time, Davis said.

NT's growing workstation influence, combined with falling component prices on Intel hardware, has prompted deep price cuts in workstations, which have plummeted by as much as 50% from last year's $20,000 prices, Weiss said.

A well-configured Windows NT workstation can cost between $6,000 and $7,000. ☐

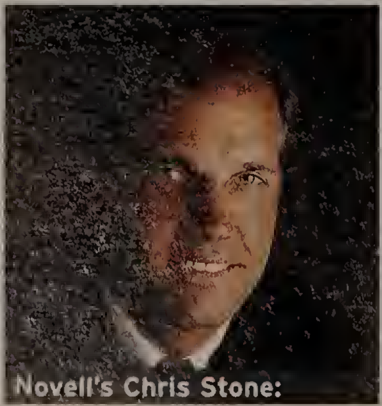
& **Nasdaq likes NT, too. Page 63**

Java partners nudge Sun forward

▸ *Push to make standard interfaces on servers*

By David Orenstein and Carol Sliwa

EFFORTS BY IBM and Novell, Inc. to push Java standards-bearer Sun Microsystems, Inc. forward are winning support from users who believe the intervention will strengthen the technology and broaden its appeal.



Novell's Chris Stone: "We're all moving toward our opportunistic markets. . . . We can't wait"

IBM has talked with Sun and Java licensees, including Novell, about making several interfaces and services standard on Java application servers, according to Jason Woodard, IBM's program manager for Java technical marketing.

Chris Stone, a Novell senior vice president, said the company has several Java-related initiatives for NetWare that it must pursue to meet customer demand. "We're all moving toward our opportunistic markets. . . . We can't wait," Stone said.

For example, Novell is working with Intel Corp. to improve Java performance on NetWare servers using Intel-based hardware, Stone said.

Those efforts to move Java along intrigue users, who said they don't face technical roadblocks now but foresee the potential for problems.

James Chong, vice president of site architecture and planning at Charles Schwab & Co. in San Francisco, said Sun is neither large enough nor versatile enough to handle all aspects of advancing a standard such as Java. "Sun does have bandwidth issues, and they don't necessarily have the expertise in a few areas," he said.

"[Sun] should be welcoming the help. If both of these companies are held up because Sun's [Enterprise JavaBeans and application programming interfaces] do not live up to the task of supporting their environments, then they have to take it up themselves," said J. P. Morgenthal, an analyst at NC.Focus in Hewlett, N.Y.

Transaction processing and messaging are IBM's specialties, Chong and Morgenthal said.

Ernst & Young LLP has been writing server-side Java for several customers, including Standard & Poor's and NationsBank Corp.

Programmers building applications across Windows NT and Solaris (Sun's Unix) haven't encountered any interoperability problems, said Catherine T. Susch, senior manager at Ernst & Young's New York-based development center.

BACKUP PLAN

However, Ernst & Young developers are writing some code to conform to the Enterprise JavaBeans specification.

In the event that they later want to use different application servers to implement the Enterprise JavaBeans, they could have problems if the vendors implemented the specification differently.

To avoid that, IBM and Novell are continuing discussions with Sun about advancing the server capabilities of Java (see story below) and about other issues.

For example, Sun demands that vendors make their implementations compatible with the standard, but Sun doesn't always provide the testing tools needed to ensure compatibility, Stone said.

Novell is uneasy about Sun being a competitor in the application server market, even as the company works with Sun to develop Java.

Bill Roth, Sun's product line manager for the enterprise Java platform, said the company keeps its standards side separate from its commercial product side.

But, he added, "The business world is not a democracy. We're the stewards of Java." ☐

Getting hooked on Java

IBM is working with Sun, Novell and other vendors to ensure a standard set of interfaces for Java application servers, said Jason Woodard, IBM's program manager for Java technical marketing. The application programming interfaces include the following:

- **JNDI — Java Naming and Directory Interface provides applications with unified access to different naming and directory services in an enterprise.**
- **JTS — Java Transaction Service was designed to give applications interoperability with transaction processing monitors, transaction managers and other resources, regardless of which vendor makes them.**
- **JMS — Java Messaging Service is an interface that developers would use to link applications with message queuing, publish/subscribe messaging and other message-oriented middleware.**
- **JIDL — Java Interface Definition Language allows Java objects to operate with the Common Object Request Broker Architecture, ensuring that the objects can share data and functionality with objects in other languages.**
- **RMI over IIOP — Remote Method Invocation over Internet Inter-ORB Protocol would ensure that Java programs could share information and data with one another over the Internet or an intranet.**
- **SQL/J — Structured Query Language for Java provides access to standard relational databases.**

— David Orenstein

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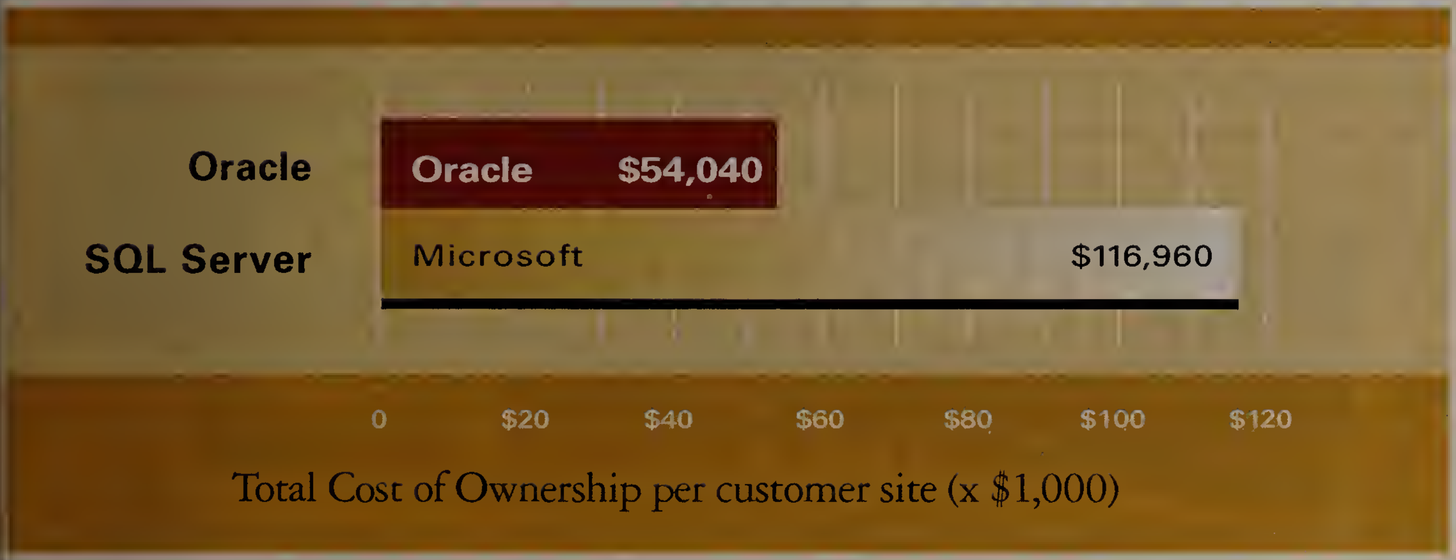

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Mobile databases are in the pipeline

▸ Oracle, Sybase products to streamline access

By Stewart Deck

DATABASE VENDORS are starting to react to the raging success of 3Com Corp.'s PalmPilot, the growing Windows CE operating system-based handheld and palmtop market and the emergence of smart phones and pagers.

Both Oracle Corp. and Sybase, Inc. last week announced plans for the handheld market. The complexity of what users are doing from mobile locations has increased significantly, causing a need for mobile databases, said Virginia Brooks, an analyst at Aberdeen Group, Inc. in Boston.

"Users need a lot of the critical information that resides in a database — and if they get to it using costly connections, they're in trouble. Anything that can streamline the database access process for the mobile or remote user is going to be a boon in the business community," Brooks said.

NOTHING NEW

Jill House, an analyst at International Data Corp. in Framingham, Mass., a sister company to *Computerworld*, said providing databases for mobile users isn't new, but the latest editions — especially those for handhelds and personal digital assistants (PDA) — are "just much more feasible than with laptops."

"Databases enable these [smaller] devices to move from personal companions to enterprise companions," House said. "They will [give] users access to corporate information and let organizations deploy these devices in a much more vigorous way."

Last week, Oracle released the latest edition of its Oracle Lite database for laptop, handheld and PDA users.

Oracle 3.5 supports both 3Com's PalmPilot platform and Windows CE. It includes features for data replication between itself and PalmPilot applications, data partitioning between PalmPilot devices and Oracle and a utility for mapping Oracle data with PalmPilot applications.

For Windows CE, it provides a full object relational database and advanced data replication features.

Sybase last week announced that it will spin off a new division to focus on the mobile and embedded database market. In addition to its Adaptive Server Anywhere database efforts for handhelds and PDAs, the new Sybase division will work on embedded databases for intelligent appliances.

Microsoft Corp. officials said the company is also polishing its SQL Server Desktop database for laptop users and is working on a database for smaller devices. Informix Corp. officials declined to provide details of their company's plans.

However, IBM is bucking the small-device trend. Jeff Jones, a program manager at IBM's Software Solutions division, said IBM has been refining its DB2 Personal Edition for laptop users — especially to minimize the connection time required for replication — but isn't looking at devices smaller than laptops.

"We don't plan to do a DB2 that would run on Windows CE or Palm[Pilot] devices," Jones said. IBM will continue to sell its WorkPad PDA, a relabeled PalmPilot, and leave the database work to other vendors, he said. □

PeopleSoft service gets user thumbs-up

▸ Fulcrum software accesses info faster

By Roberta Fusaro

PEOPLESOFT, INC. has upgraded its customer service efforts in the past year, and users say they notice the difference.

As part of an overall strategy to improve customer service, the Pleasanton, Calif.-based business process automation software company is using knowledge management software from Fulcrum Technologies, Inc. in Toronto to give its customer service representatives quicker access to client information.

Jim Alexander, director of information systems, said PeopleSoft established a group to deal with customer problems because users wanted faster service responses and easier ways to find bug fixes and download software from the company's World Wide Web site.

PeopleSoft has enjoyed rapid-fire growth, moving from $450 million in 1996 to $815.6 million last year. But with that growth, it became harder for old and new users alike to contact the vendor's help line, users have said.

By instituting the problem resolution group and adding the Fulcrum software to their customer-service arsenal, PeopleSoft has reduced the time it takes to respond to customer requests from about 30 minutes to about five minutes, Alexander said.

MAKING A DIFFERENCE

"PeopleSoft is spending a good deal of time focusing on [customer service] in the organization, and it's more than just smoke," said Rick Beers, a strategic process leader at Corning, Inc. in Corning, N.Y. "They seem to be trying, and I personally have seen a difference."

Beers chairs a 30-member user group set up this year by companies such as glass products maker Corning that have bought PeopleSoft's new manufacturing applications.

About a year ago, PeopleSoft purchased Fulcrum's Knowledge Network software, and it has since rolled it out to 2,000-plus U.S. customer service representatives, Alexander said.

They can now use one query to access information stored in the company's Lotus Notes databases and file systems such as Microsoft Corp.'s Word Exchange and PowerPoint. The results are returned in one formatted list via a customized Web browser. Previously, Alexander said, customer representatives would have to query each database and information repository separately, which was time-consuming.

The software also was made part of PeopleSoft's customer extranet site to make it easier for customers to query the more than 200,000 pages of information in the PeopleSoft databases, Alexander said.

The only hitch in the rollout, he said, was in making sure access privileges and security issues were addressed so that users would get only the information to which they were entitled. PeopleSoft has 2,500 customer sites and about 25,000 contacts at those sites.

ALAN JAKUBEK

Green Mountain Coffee Roasters' Jim Prevo is looking forward to an improved user interface at the PeopleSoft site.

Jim Prevo, chief information officer at Green Mountain Coffee Roasters in Waterbury, Vt., said he has used PeopleSoft's customer site, primarily for bug fixes and information searches. He said he is looking forward to any improvements in the user interface. "I'm always happy to work with a company that has a Web site where I can get information 24-by-7," he said. □

Senior editor Craig Stedman contributed to this report.

Correction

A Sept. 14 news story, "Oil vendor wins with tiny IT staff," misspelled the name of Unisys Corp.'s CEO. He is Larry Weinbach.

IT crucial to 5-airline alliance

By Sharon Machlis

INFORMATION TECHNOLOGY will be a key component of a new five-airline alliance called Oneworld aimed at offering travelers better worldwide connections and more frequent-flier options.

"A lot of effort, a lot of work and a lot of money will be spent" on IT because sharing information among the airlines is a crucial part of the arrangement, according to American Airlines spokesman Chris Chiames.

American will partner with British Airways PLC, Cathay Pacific Airways Ltd. in Hong Kong, Canadian Airlines Corp. and Qantas Airways Ltd. in Australia to create better international flight connections, shared frequent-flier benefits and other promotions, the companies announced last week.

Oneworld is scheduled to take effect early next year.

The alliance should make it easier for employees of one airline to check or change flights for the other at any airport, Chiames said.

In addition, a British Airways agent should be able to check if American frequent-flier credit has been given for one leg of an international trip, for example.

Participating airlines refused to discuss specific systems issues for competitive reasons, saying only that they don't expect technical problems to hold up rollout plans.

Government regulations typically cause more problems for such arrangements than technology issues, according to Raymond Neidl, an analyst at ING Baring Furman Selz LLC in New York.

After American and US Airways, Inc. announced plans this spring to link frequent-flier programs and flight connections, some analysts said systems integration could be tricky.

But Barbara Beyer, president of Avmark, an aviation consulting firm in Arlington, Va., said most reservation and booking systems "have gotten to be fairly standard. . . . I don't see it as a major problem." □

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3Com device for virtual net setup

By Bob Wallace

LOOKING TO DRIVE user deployment of virtual private networks (VPN), 3Com Corp. next month will ship an all-in-one box that it claims will enable companies to easily set up the heavily promoted data networks.

The vendor has developed a VPN access switch line dubbed the PathBuilder S500. It comprises four models with pricing topping off at $22,500.

VPNs are secure tunnels that carry data over IP-based public networks such as the Internet.

They have garnered interest as a less-expensive alternative to private-company networks, but security and performance concerns have kept many users from migrating.

The PathBuilder S500 line supports tunneling and encryption. Some models also support dial-up and dedicated wide-area network connections.

The box also features built-in high-performance routing.

The benefit of deploying the 3Com device is that it combines a large amount of networking functionality in one box, according to an analyst briefed by 3Com who requested anonymity.

It will compete with Bay Networks, Inc.'s Extranet Access Switch line of products, he added.

The PathBuilder S500 models vary based on the type of ports, which include Ethernet LAN, T1 WAN and High-Speed Serial Interface.

The company declined comment. □

Bay switches to boost power

By Bob Wallace

BAY NETWORKS, INC. this month will ship two workgroup switches that are twice as powerful and half as expensive as their aging predecessors.

Santa Clara, Calif.-based Bay is prepping the BayStack 350-12T and 350-24T stackable systems, which support 12 and 24 10M/100M bit/sec. ports respectively and — unlike earlier models — can be outfitted with Gigabit Ethernet uplinks.

The vendor's successful but older BayStack 350s sold at $249 per port and had a 1.2G bit/sec. backplane; the new 24-port 350T model will sell for $125 per port and sport a 2.5G bit/sec. backplane.

MORE TO COME?

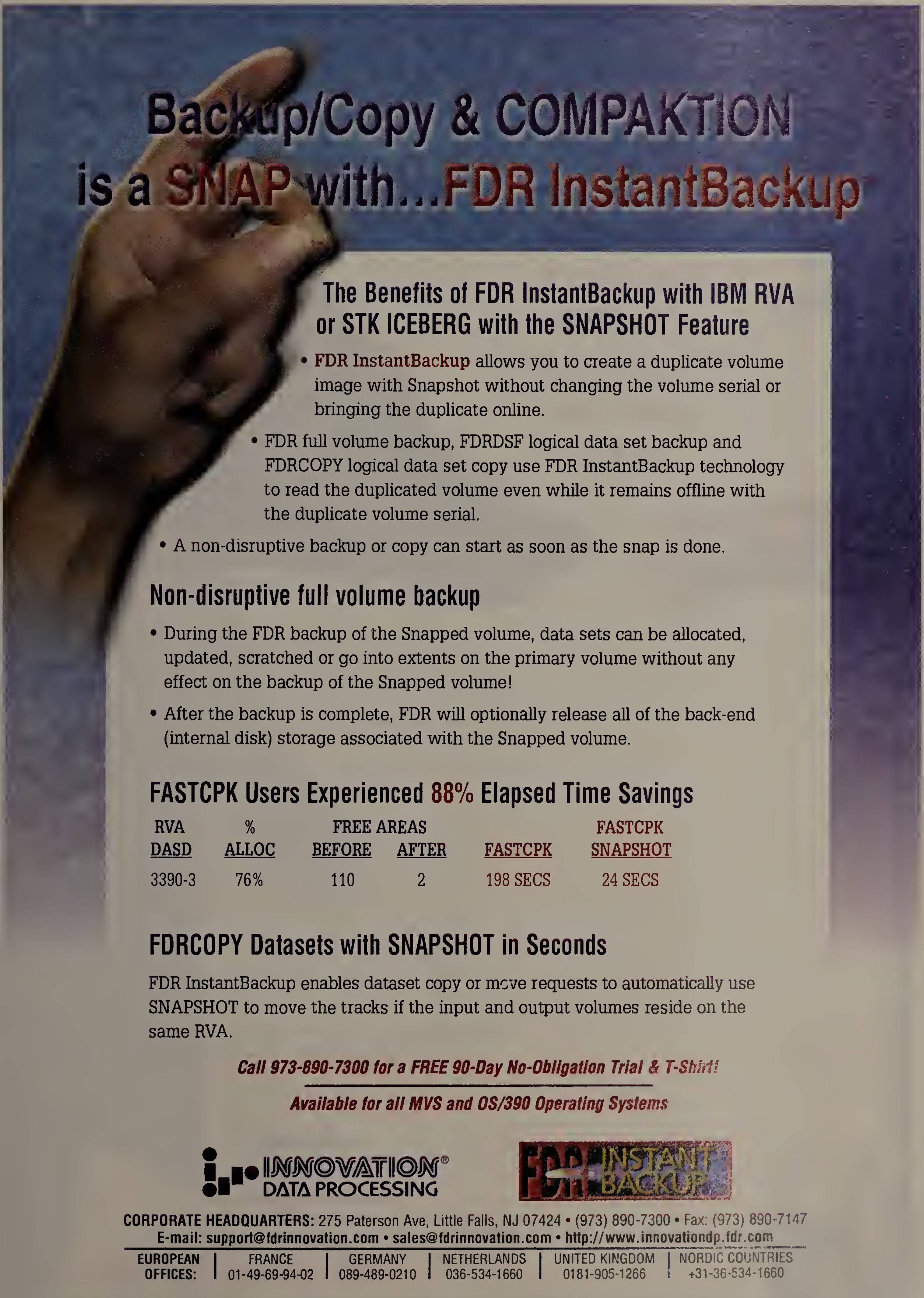
"This is the next key shot in the price/performance wars from which users benefit by getting much more functionality while saving money," said Eric Hindin, an analyst at The Yankee Group, a consulting and research firm in Boston. "And I don't expect it will be long before other vendors drop their prices."

One Bay user was pleased to hear of the next-generation BayStack 350 switches.

"The 350 was good before and will be better now with the lower price and extra features," said Brett Frankenburger, systems engineer at Union Pacific Railroad Co. in Omaha.

And as far as getting much more for much less, he added, "Switching to the desktop is where the industry is headed. Every new generation of switches with lower prices makes it more cost-effective for [PC] users."

The Bay 350s aren't the first 10M/100M bit/sec. workgroup switches to support Gigabit Ethernet uplinks. 3Com Corp.'s SuperStack II 3300 Switch can also be equipped with the 1G bit/sec. technology. Asynchronous Transfer Mode uplinks are planned for the new Bay boxes. □



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Backers want Web procurement standard expanded

By Carol Sliwa
Los Angeles

MAJOR BACKERS of the Open Buying on the Internet (OBI) standard for business-to-business Web procurement last week unveiled a plan to evaluate extending its functionality, even though OBI is just getting off the ground (see related story, page 43).

OBI Consortium members, in town for their quarterly meeting and product demonstrations at the Internet Commerce Expo, said they would like to see the specification do the following:

- Let them do OBI transactions globally, addressing data type, currency, tax and customs issues.
- Incorporate more business functionality, such as a purchase-order acknowledgment, purchase-order change notice and advance ship notice. Right now, OBI deals only with purchase orders.
- Consider new technology, such as Extensible Markup Language, that could make it easier for customers to do cross-company catalog searches and exchange data over the Internet.
- Spell out a certification program for software and buyer/seller World Wide Web sites.

OBI specifies how buyers gain access to the supplier's catalog, the data structure, purchase order format, transmission mechanism and the digital signature/authentication model.

DRIVEN BY FORD LATELY

One of the companies driving the globalization push is Dearborn, Mich.-based Ford Motor Co., which has manufacturing facilities in 24 countries. Most of the 10,000 suppliers that sell Ford nonproduction goods — items that aren't used to build cars, such as office supplies and industrial materials — are U.S.-based, but there are important nonproduction suppliers in Europe, South America, Asia and Australia.

"When you're dealing in Germany, and you've got shop workers trying to look up parts for a particular plant, then they're going to want to look at the catalog in German," said Robert McMahon, a supply-chain systems supervisor at Ford.

Under an OBI-compliant system, employees authorized to make purchases over the Internet enter a Web site with a digital certificate, see a catalog that reflects their company's negotiated prices and place an order. The order is sent to their company for approval and then routed back to the seller.

Drawing Ford to the OBI table was the need to have accurate, updated pricing information, McMahon said. Having an updated electronic catalog can help reduce the need to resolve pricing discrepancies.

One of Ford's suppliers, for instance, has a 4,000-page catalog. Whenever negotiated prices change, it isn't easy to update a huge paper-based catalog on a company-by-company basis.

Resolving pricing discrepancies can be an even greater headache. That's why many companies are advocating that OBI be extended to provide order receipts and advance notices.

Customers of Office Depot, Inc. in Delray Beach, Fla., report that calls from end users to the purchasing department can be reduced by 60% if customers know the status of orders.

An added plus is that there tend to be fewer returns when customers order online.

And "if they make a mistake, they did it themselves," said Monica Luechtefeld, vice president of contract marketing and sales administration at Office Depot. "The user actually can see and double-check what they're buying, so there's less chance for them to misorder." ☐

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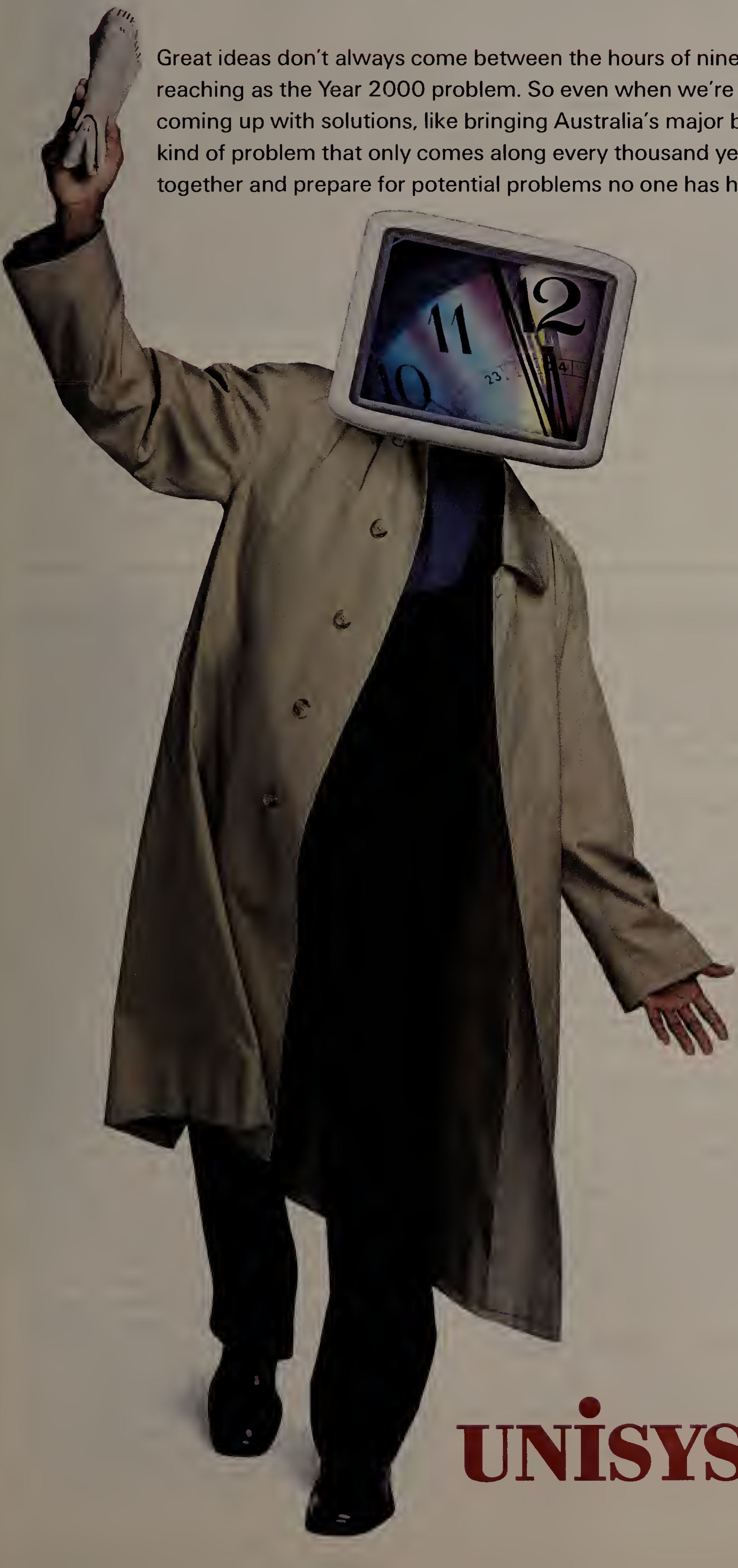

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FRANKLY SPEAKING

The year 2000 reboot

FRANK HAYES

YEAR 2000 IS COMING. What should you do about your critical systems? Shut 'em down. That's right — in the final hours of 1999, the best thing you can do for your information systems may be to just shut them down.

Turn them off. Carefully and methodically power down every mainframe, every server, every network and every workstation in your organization.

And then, once midnight is past, start them up again.

Think that sounds crazy? For some computer-controlled functions, it is. Nobody wants air-traffic control computers shut down, or defense radar, or computerized medical machines that monitor life and death. And yes, there *are* a lot of those systems.

But for most business computers and networks, shutting down everything possible makes a lot of sense. And the time to plan that shutdown is now.

Sure, you've been beating your brains out to correct your year 2000 problems. But no matter how many millennium bugs you've fixed and how carefully you've tested, at midnight on Dec. 31, 1999, some things will still be beyond your power.

Power itself, for example. What if the electricity goes off at millennial midnight? What if your backup power system isn't year 2000-clean and fails to kick in? What if the air conditioning dies, either from lack of juice or a non-year 2000-compliant control system?

In the final hours of 1999, shut down your information systems.

What if subtle but deadly glitches in hardware don't show up in testing but only when *all* the systems on your network roll over from 99 to 00 at the same time? What if a year 2000 software problem you missed wreaks havoc on data all across the network while you watch helplessly?

Don't take that chance. Declare the last hours of 1999 a maintenance holiday. Make your final backups for the year, then disconnect your systems from the outside world and shut them down.

Then wait. Not just until midnight — give it plenty of extra time to make sure electricity, water, phones and other critical services have survived into the new millennium.

Then, if the lights haven't dimmed, the air conditioning hasn't shut down and the backup power still works, start to bring your systems up again — one machine at a time. Make sure each one is behaving before adding the next and reconnecting your networks.

If something goes wrong, you can decide, on a machine-by-machine and application-by-application basis, what isn't working and what to do. Your team can cut out systems that choked and reassemble the rest in an orderly fashion.

Maybe putting your information systems back together will take only a few hours. Maybe you'll be at it a lot longer. If you're really unlucky, you could be sitting in the dark for days before you can even *begin* to bring things back up. That's still a much saner way to spend New Year's Day 2000 than crossing your fingers and watching helplessly as your network goes haywire.

But to get to that sensible New Year's Eve 15 months from now, you need to begin planning — and pushing — your millennium shutdown today.

You'll have to sell your top management on the idea. You'll need to explain to suppliers and customers why your systems will be off-line that night — and that you can't say exactly when they'll be back.

And you'll have plenty of logistics to plan with your staff, including dress rehearsals for the big night. Your year 2000 team won't be whooping it up when midnight comes — and maybe not for grueling hours or days afterward.

But once your systems are back online, your IS staff really will have a reason to party like it's still 1999. □

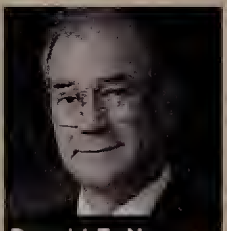
Hayes is Computerworld*'s staff columnist. His Internet address is frank_hayes@cw.com.*

SHORTS

House approves H-1B increase

The House last week approved a bill that would let more than 300,000 foreign professionals work in the U.S. during the next three years. The bill boosts the current cap of 65,000 on H-1B visas to 115,000 for 1999 and 2000 and puts it at 107,500 for 2001. Many of the visas will be used to fill information technology-related jobs. The bill now goes to the Senate. If it passes there, President Clinton is expected to sign it.

Harrod's gets Kmart's CIO



Donald E. Norman

Donald E. Norman, senior vice president and chief information officer at Kmart Corp., has left the Troy, Mich.-based retailer to become technology chief at The Harrod's Group in London. Laurence L. Anderson, president of Super Kmart and executive vice president at the parent company, is serving as the company's CIO on an interim basis.

IBM banks on Java

IBM last week rolled out an application server strategy that depends on Java to bind its diverse technologies into a streamlined offering. The company said it will incorporate under the WebSphere product umbrella its TXSeries distributed transactions technology, its Object Broker distributed object integrator and its Net.Commerce electronic-commerce product.

Baan adds to its stable

The Baan Co. last week struck another in a string of acquisition deals by agreeing to buy Caps Logistics, Inc., an Atlanta-based maker of logistics planning and scheduling software. The purchase price wasn't disclosed. Caps Logistics, which has about 135 employees, will become a Baan subsidiary after the deal is completed later this year.

Georges takes toll

As of Friday, more than 50 U.S. companies, primarily banks and consumer packaged goods firms, had placed disaster recovery firm Sungard Data Systems, Inc. in Wayne, Pa., on disaster alert as Hurricane Georges raced across the Florida Straits to the Gulf Coast. Ten Florida-based companies declared disasters with disaster recovery company Comdisco, Inc. in Rosemont, Ill., including insurance and retail customers that had to evacuate the area.

Release of Gates video urged

The U.S. Department of Justice urged a federal appeals court to order the release of videotapes and transcripts of the depositions taken in the Microsoft Corp. antitrust case. Several media outlets filed a motion last month asking that the pretrial interviews — including that of Microsoft CEO Bill Gates — be opened to the public. They cited a 1913 law that lets the public attend depositions in antitrust cases brought by the government. A ruling is expected in the next few weeks.

Microsoft seeks Caldera delay

Microsoft Corp. is expected to plead today for an extra 120 days to prepare its defense in the antitrust lawsuit brought by Orem, Utah-based Caldera, Inc. In papers filed in U.S. District Court in Salt Lake City recently, Microsoft said it needs a four-month delay to depose more than 20 witnesses. Caldera sued Microsoft in July 1996, alleging that Microsoft abused its power in the PC operating systems market to shove out the competing DR-DOS operating system. The trial is set to start next June.

CONTRACT OF THE WEEK

Customer: Caricentro, Milan, Italy

Prime contractor: IBM

Terms: $240 million, 10 years

Highlights: IBM will handle information management and application development projects for Caricentro, an information systems consortium for nine banks in central Italy. Key objectives include managing euro conversion and year 2000 projects.

SHORT TAKES A former *Cincinnati Enquirer* reporter pleaded guilty last week to stealing voice-mail messages for his articles on business practices at **Chiquita Brands International, Inc.** published in May. . . . **Netscape Communications Corp.** and **Lucent Technologies, Inc.** last week struck a deal to offer consulting services, software and network security for electronic commerce. . . . **Dell Computer Corp.** will bundle with its Dimension PCs software that opens an Internet browser at a customized Dell start page. . . . Following two straight quarterly losses, Rockville, Md.-based supply-chain planning software maker **Manugistics Group, Inc.** last week laid off 80 employees to trim its workforce by 6%. . . . **AT&T Corp.**, based in Basking Ridge, N.J., last week announced a set of services to help companies expand their extranets for electronic commerce. . . . **Lotus Development Corp.** announced the Domino.Doc Imaging Client and the Domino.Doc Storage Manager at Lotusphere Europe in Berlin.

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Expanding Possibilities

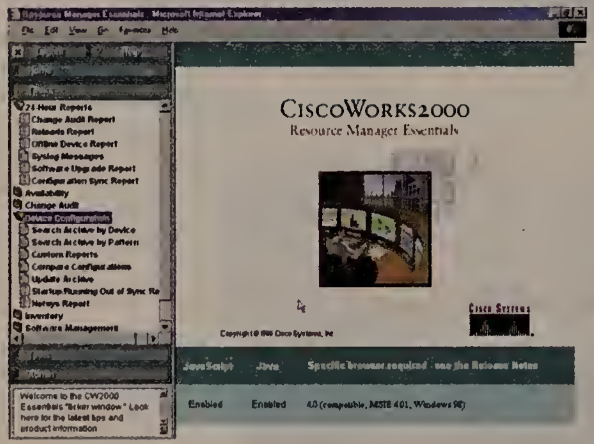
Cisco tackles net management

▸ *Network monitoring possible from any client*

By Cynthia Bournellis

USERS ARE looking to Cisco Systems, Inc. to solve their network management needs with a new Web-based software package.

The $9,995 CiscoWorks2000 was designed to help IT staffs manage enterprise networks' Cisco hardware and to share data with more than 30 other vendors' management applications. It uses a browser as its user interface.



Welcome to the CW2000 Essentials "ticker window." Look here for the latest tips and product information

CiscoWorks2000 has an Internet-based registration process and Web-based design

Because CiscoWorks2000 works with any standard Web browser, administrators at Shell Oil Co. in Austin, Texas, can monitor network devices from any client PC or laptop. Before using CiscoWorks2000, Shell had to install Cisco network management software on every administrator's desktop.

COST-SAVER

"Having a Web-based design saves us time and money, because someone can fire up a browser from home [or work] and start working on the problem immediately, and I don't have to pay for software for each PC," said Arun Padmanabhan, a senior communications consultant at Shell.

New features in CiscoWorks2000 let businesses using only Cisco hardware, such as Turner Broadcasting System, Inc. (TBS) in Atlanta, automate tasks such as upgrading network devices with year 2000-compliant software.

CiscoWorks2000 features an Internet-based registration process that lets developers integrate their Web-based applications with it.

"The software polls each device and lets us know what we have to do," said Bob Pinney, a senior network engineer at TBS. "Before, I'd have to do this over the phone."

Although CiscoWorks2000 provides a strong foundation for sharing data among multivendor tools, it doesn't do a good job showing the relationship among network devices, said Thomas Archuleta, a principal technologist at Sandia National Laboratories in Albuquerque, N.M. "Right now they show up as unattached entities," he said.

That has forced Archuleta to build his own map, showing the logic between the Lucent Technologies, Inc. Asynchronous Transfer Mode switches that run Sandia's network backbone and the Cisco routers attached to it.

Although Pinney uses all Cisco hardware, he too has to generate a detailed network map, although not by hand. But when doing so, he has found that CiscoWorks2000 often crashes when mapping five devices, costing him valuable time. To avoid that, Pinney said he had to map three devices at a time, save the changes and then close and reopen the application. "I have 162 devices in the network, and it took me two hours to do it," he said. Cisco said it plans to fix the problem.

CiscoWorks2000 is a result of Cisco's Assured Network Services strategy, launched last year along with a new enterprise management business unit.

Cisco is branching out into management software to differentiate its hardware offerings from others and to make customers look to Cisco even when they have non-Cisco hardware installed.

"Cisco is in a good position to make a fresh start in network management because most platform solutions haven't been successful," said Jim Metzler, an analyst at Metzler Group in Newton, Mass. ☐

DB2 targets complexity, Java

ENTERPRISE NETWORKING

By Stewart Deck

ON THE first anniversary of the release of its DB2 Universal Database, IBM last week announced several tweaks to the enterprise database, along with related data warehousing news that users and analysts say are welcome additions.

Some of the enhancements were designed to support more complex data warehousing and data mining and also appeal to Java developers.

Version 5.2 includes enhanced Java support, administration controls based on Java and links to IBM's VisualAge for Java that let developers extend existing applications to the World Wide Web.

Penny Simoneau, an Internet and database developer at Texas Guaranteed Student Loan Corp. in Austin, uses DB2 on Unix and Windows NT. She said the new Java features have caught her attention. "We're interested in seeing what we can implement with Java," she said. "Its cross-platform capabilities could make our lives easier if it does what they claim."

Jane Landon, a systems executive at Prudential Insurance Company of America in Newark, N.J., said DB2 has fit her company's data warehousing needs well. Prudential uses DB2 Universal Database with a data warehouse to help calculate the cash reserves needed for insurance policies. Landon said she looks forward to its new capabilities.

In data warehousing, IBM announced that its Visual Warehouse tool for building data marts and warehouses can now integrate other warehousing tools with DB2. Jose Santana, an analyst at Dataquest in San Jose, Calif., said the enhancement will ease the integration headache for many users.

Ross Armstrong, an analyst at R & L Armstrong Associates, Inc. in Toronto, said IBM is trying to provide more of a complete, turnkey data warehouse environment.

"IBM will put it all together and test it out. All the customer has to do is add data and analyze," Armstrong said.

AutoZone, Inc., a Memphis-based auto parts retail chain, has used DB2 Universal Database to build a 300G-byte data warehouse. Michael Embry, the lead data warehousing analyst at AutoZone, said IBM's turnkey focus "sounds wonderful."

"In the past, everyone has had to integrate software from various vendors, which has been one of the key problems in getting a warehouse up and running," Embry said.

But Embry also said he would be a little wary of too-tightly wrapped data mart bundles. "I'd want to make sure we had enough flexibility to modify models and software to fit our needs," he said. ☐

Web list singles out at-risk medical devices' makers

By Robert L. Scheier
and Barb Cole-Gomolski

GOVERNMENT REGULATORS and medical equipment manufacturers are slowly gathering information about whether lifesaving devices might fail because of the year 2000 bug. But there is no single database everyone can trust.

To force manufacturers to respond to Food and Drug Administration (FDA) queries, Sen. Christopher Dodd (D-Conn) last week published in the Congressional Record a list of nonresponding companies. He said only about 755 out of 1,935 domestic and foreign manufacturers have supplied such information.

WEB SITES

The list of nonresponding companies can be found on the World Wide Web via a search at the government printing office site at *www.gpo.gov.*

Separately, the FDA last week published on the Web (*www.fda.gov/cdrh/yr2000/y2kprblm.html*) a list of devices that have been identified by their manufacturers as not year 2000-compliant.

Devices on the list include heart monitors and infusion pumps for intravenous medications. Several of the manufacturers that reported their products were noncompliant didn't respond to requests for comment, but in the database they claimed the date-change glitch would affect only the display of data, not the administration of medication.

They also said hardware or software fixes would be provided free or at cost.

Several organizations have put together databases of year 2000-related health equipment bugs that were open only to their members, but hospital chief information officers have called for more widespread sharing of information [CW, Aug. 17].

The FDA database is a response to such concerns, but several hospital year 2000 project executives said they will still test all critical equipment and gather their own information to prove they performed due diligence on the year 2000 issue in the event of related litigation.

Rick Carney, vice president and CIO at Staten Island University Hospital, said the FDA's efforts are "too little, too late."

Most databases just record a vendors' claims of year 2000 compliance, which can't always be trusted.

"We just bought a piece of lab instrumentation which [the vendor] assured us, both verbally and in writing, was year 2000-compliant, and it turned out not to be," said Dwight Muller, director of information services at Fallon and St. Vincent Health Care Systems. ☐

The FDA database may be "too little, too late."
– Rick Carney,
Staten Island
University Hospital

& Update on the bill that would protect firms that make false statements about Y2K preparedness. Page 39

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Middleware enables 'net usage planning

By Matt Hamblen

A NEW MIDDLEWARE product can help network managers track down that worker watching live video of World Cup soccer over the Internet — and crippling the company intranet at midday.

The goal isn't to be Big Brother, but to help a company plan its Internet usage better and urge employees to push bandwidth-rich activities to off-peak times.

The statistics generated by the software also can be used to bill departments for the type and frequency of their Internet traffic.

Xacct Technologies, Inc. in Santa Clara, Calif., last week announced its network reporting software, Xacctusage, which is available now for $25,000.

Analyst Chris Nicol at Current Analysis, Inc. in Sterling, Va., said the Xacct middleware works by tying user authentication to accounting and billing software.

There are many vendors in the general area of Xacct, but "this is the only one we know of that is tying all these parts together," he said.

Xacctusage is more flexible, less expensive and can collect more information than a similar product announced jointly in May by Hewlett-Packard Co. and Cisco Systems, Inc., said Neville O'Reilly, an analyst at TeleChoice, Inc. in Tulsa, Okla.

The middleware helps Salt Lake City-based Intermountain Health Care, Inc. do Internet capacity planning "to make sure the services we provide are available all the time," said Matt McClung, an engineering analyst at the company.

ROI MONITOR

Intermountain Health Care, with 25,000 employees and 25 hospitals in Utah and nearby states, is using Xacct software to track its Internet traffic. McClung said he plans to use that data to see how much traffic has been reduced by caching Internet data on a new $10,000 proxy server, which will demonstrate the value of the server investment.

"We've got multiple T1s to the Internet, and that's expensive, so we need to know how to maximize our Internet [investment]," McClung said. In the future, the company may use the reports to bill departments for their exact use, he added.

But the company found that with Xacctusage, a "significant infrastructure must be put in place to make it work," McClung said. The Internet monitoring system required an Oracle Corp. database server and the ability to store 4G bytes of data for 90 days, he said.

Another beta tester, 4C Solutions, Inc., which provides online technical training, has begun to test Xacctusage to bill customers for online use of video class materials, said Jason P. Wilcox, network architect at the East Moline, Ill., company.

Analysts said Xacctusage will be most valuable to Internet service providers and large insurance and health care companies, where one central office is tracking data for many branch offices. ☐

Xacct Technologies' Xacctusage software

Price: Starts at $25,000

Platforms: Sun SPARC and Windows NT 4.0

Database bundles available: Oracle7.3, Microsoft SQL Server 6.5 and Sybase SQL Anywhere 5.0

Interface access: Through Windows 95 and NT, Java-enabled Netscape 3.01 (and later) and Microsoft Explorer 3.02 (and later) browsers

I2 braces for SAP assault

By Craig Stedman

WITH SAP AG invading its supply-chain planning turf, I2 Technologies, Inc. is rushing to extend its software into business areas such as sales and product development.

For now, I2's Rhythm technology is used mainly in applications such as production, demand and transportation planning. But at its Planet 98 user conference in Dallas last week, Irving, Texas-based I2 announced plans to move beyond the supply chain.

That's scheduled to start by year's end with the release of new software for planning product-development projects, I2 said.

Also in the works for delivery next year are products for allocating marketing funds, deploying sales forces and scheduling field service staffs.

BIGGEST, FOR NOW

I2 now is the largest supply-chain vendor, with revenue of $155 million in the first half of this year. That was up almost 75% from $89.5 million in the same period last year.

But lurking over I2 and its brethren is the shadow of packaged application kingpin SAP, which recently began limited shipments of a supply-chain planning product [CW, Sept. 21].

Lucent Technologies, Inc.'s power-supply division uses I2's Rhythm for demand planning and is due to go live with SAP's flagship R/3 software for finance and other applications next month.

Widening the use of planning software to more parts of the business "is the way of the future," said Karen Peterson, manager of business process planning at the Lucent unit in Mesquite, Texas.

R/3 "is basically just a transaction system, and that's not what makes your company successful. This [planning] stuff is," said Peterson, who is chairwoman of I2's independent user group.

And Lucent plans to stick with I2 for planning software because it is "so far ahead of SAP" on functionality, she added.

But corporate use of supply-chain software "is minuscule" now, said Jim Shepherd, an analyst at AMR Research, Inc. in Boston. "And for the vast majority of buyers, whatever [SAP and other application vendors] come up with will be good enough. Most people like buying from one company."

That's forcing the likes of I2 to look for new ways to differentiate themselves, Shepherd added. "They really don't have any choice." ☐

Customer data

CONTINUED FROM PAGE 1

But a lot of issues need to be resolved before it tries to collaborate with a broad swath of customers. "We're not going to go out and thump our chests and advertise this. We have to grow our way into it," said Robert Betts, Riverwood's director of global information services.

Betts said collaborative forecasting could make production scheduling less of a gamble for Riverwood, which has to balance the need to stock up on inventory for sudden demand surges against the fact that paperboard starts to break down after 90 days.

The forecasts the company now gets from the beer and soft drink makers it sells to are made only monthly, forcing planners to "deal with things more by reflex action," Betts said. Automated daily feeds should help smooth things out and lower costs on both sides by minimizing last-minute production changes and emergency shipments, he added.

But still up in the air is whether electronic data interchange messages or direct links to Riverwood's intranet should be used to transfer customer demand forecasts into SAP AG's business applications and supply-chain planning software, which Riverwood is in the process of installing.

And the technology issues "are the easy part of this," Betts said. Getting customers to trust that their internal sales will be safe in Riverwood's hands is much more daunting. And the question of whether Riverwood can charge customers to take part is "off the table" for now, he added.

Technology-driven collaboration is becoming a staple for Wal-Mart Stores, Inc. and other retailers, which lean on their suppliers to keep track of inventory stocks for them — known as vendor-managed inventory.

Now, manufacturers of all stripes are talking about collaborating with their customers on demand and production planning, said Jim Shepherd, an analyst at AMR Research, Inc. in Boston.

Monthly forecasts that usually come in by phone or fax are "probably pretty close to meaningless," Shepherd said. "But it's still up in the air as to how you do this [collaboration]," he added. "There's a huge cultural issue on both sides. This is incredibly sensitive information."

HIGH HURDLE

Building up enough trust "to share information and believe you're not going to use it against each other in a negative way is probably the single biggest hurdle" to get over, agreed Charles Whitfield, manager of information systems at Algoma Steel, Inc. in Sault Ste. Marie, Ontario.

Algoma, Canada's third-largest steelmaker, is installing new planning software developed by a U.K. vendor and starting to talk to customers about possible ways to share more data, Whitfield said.

But there are no collaborative forecasting projects in Algoma's immediate future, he added. "We're working in that direction, but it's kind of an evolving process."

At I2 Technologies, Inc.'s user conference in Dallas last week, a collection of manufacturers that rely on the company's supply-chain planning software began to lay the groundwork for a special interest group focused on working collaboratively with customers.

"Most companies don't even know how to do it," said Karen Peterson, manager of business process planning at Lucent Technologies, Inc.'s power-supply division in Mesquite, Texas, and chairwoman of I2's independent user group.

"The rules of the road are at issue," she added. "You're going to have to develop [customer] relationships, and a lot of that will be on a case-by-case basis." ☐

& Some say SAP's Sapphire conference was little more than a sales pitch. Page 55

GETTING IT TOGETHER

Benefits of collaborative forecasting and planning:

- Lower manufacturing and inventory costs
- Less disruption of production schedules
- Stronger relationships with customers
- Competitive differentiation for manufacturers

But companies still need to answer the following questions:

- How much information should be shared?
- How should different systems be linked?
- How will data security be guaranteed?
- Who will pay the technology costs?

Source: AMR Research, Inc., Boston

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CIOs confront changing reality of IT

▸ Roundtable discusses staff retention, Y2K

By Thomas Hoffman
New York

SLEEPLESS in CIO-ville.

Year 2000 problems and staff retention are making a lot of chief information officers sleepless, including four financial services chiefs who participated in a roundtable discussion at the recent Financial Technology Expo and World Conference in New York.

The CIOs were John Beran of Comerica, Inc., Edward Goldberg of Merrill Lynch & Co., Richard Ranelli of Wellpoint Health Networks and Mel Taub of Salomon Smith Barney. George MacLean, vice president for global strategic accounts at Nortel Bay Networks, was the panel moderator.

What follows are highlights from the roundtable.

▪On year 2000, the executives were most concerned about the readiness of foreign trading partners.

Goldberg: Year 2000 has given me a small bellyache from time to time.

How focused [is the rest of the world outside the U.S.] and how will they be prepared to meet [the year 2000 problem]?

Ranelli: One of the key things we have to figure out is just how much integration testing has to be done.

BRIAN SMALE

▪Although fat salaries and bonuses in financial services have historically helped draw top information technology talent to the industry, CIOs are finding out the hard way that money isn't everything.

Goldberg: [U.S. universities and colleges] are not turning out computer scientists [at the same rate] that we used to.

We're going wherever we can to recruit talent [that includes Merrill Lynch's February acquisition of the information services group at now-defunct Yamaichi Securities].

In the old days [Goldberg started his career at Merrill Lynch in 1961], if you looked at a resume with more than three [employers] listed on it, you became suspicious. That's all changed.

"In the old days, if you looked at a resume with more than three [employers] listed on it, you became suspicious. That's all changed."
– Edward Goldberg, Merrill Lynch

Ranelli: One of the mistakes we've made is looking at the accomplishments of a project and moving people onto the next project [without giving them an opportunity to work with different technologies].

We're working on that now.

Beran: We've gone down to the high schools to test [students] for [technical] aptitude and train them. It's beginning to pay off — not just in terms of talent, but diversity.

I think people look for reasons to stay rather than leave. [Retention] has to be about more than financial compensation.

▪With the advent of heightened competition and tight margins, CIOs have to be more scrupulous than ever about measuring and meeting technology return on investments.

Taub: When a new line of business project comes up, and the cost is over $100,000, our CEO wants to know about it.

We then hold the [primary] business and systems persons accountable for the results.

Goldberg: [On Sept. 14], we took every business leader [throughout Merrill Lynch] through the costs of every technology project [they've requested] through 1999.

We [in IS] just have to make sure we deliver it correctly to their [business] specifications and maintain it.

Ranelli: We have to have a way to measure the results [of technology investments and their impact on business] through such things as customer satisfaction ratings.

It's financial management 101 — how much do we want to spend and what do we want to accomplish specifically for every project that we do?

▪Can companies make sizable returns on Internet-based business projects, given that only an estimated 15% of consumers are online?

Goldberg: Companies are having difficulty making big money [using the Internet].

School is still out — there's a lot of experimentation [creating business models using the Internet] today.

Ranelli: The question you have to ask yourself is how much more money do you want to invest in Internet projects for the 15% of consumers who are using it.

I don't think we've found that value in health care insurance yet. ☐

MOREONLINE

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www.computerworld.com/more

Network tools simplify reporting

▸ Compuware update designed to boost service

By Cynthia Bournellis

USERS ARE optimistic that new versions of Compuware Corp.'s monitoring, management and reporting tools will simplify reporting and improve service-level management.

Farmington Hills, Mich.-based Compuware is updating its three tools: EcoTools for monitoring, EcoScope for reporting and EcoSnap for process-failure diagnosis.

"The Internet is a new ball game for us, and we need to manage it with rigor."
– Conrad Rossow, Minnesota Mutual Life

However, users cautioned that the upgraded tools won't be a panacea.

CareTech Solutions, Inc., an information technology services company in Dearborn, Mich., expects the new enhancements to benefit the bottom line by letting the company improve reporting processes for its clients. CareTech uses earlier versions of EcoTools and EcoScope to gather and deliver data to financial and medical personnel at Dearborn, Mich.-based Oakwood Healthcare System.

But because the Oakwood network has more than 1,000 PCs and 35 platforms, some of which are used to store data on medical devices such as fetal heart machines, it generates a tremendous amount of information.

Compiling the data into a readable format, such as Excel, is a time-consuming task, said Kenneth Bradberry, lead systems programmer at CareTech.

"By the time I do this, my clients have gone through the roof," Bradberry said. "This affects our bottom line and our ability to meet or exceed our service-level agreements." Bradberry is banking on the new tools to solve his reporting problem.

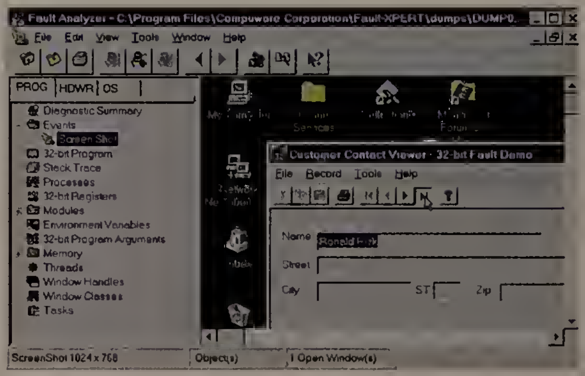
Although the three tools were designed to give IT organizations a broader view of the network, their use may not reduce IT expenses in the short term. "In theory, [total cost of ownership] should go down, but if it doesn't [immediately], you'll still see improved service levels," said Philip Mendoza, an analyst at Framingham, Mass.-based International Data Corp., which is a sister company to *Computerworld*.

For Minnesota Mutual Life Insurance Co. in St. Paul, Minn., quality of service will become critical as the company begins to move its financial services to the World Wide Web.

"The Internet is a new ball game for us, and we need to manage it with rigor," said Conrad Rossow, chief information officer at the insurance firm.

A JUMP-START

Although Rossow said he has yet to see a set of tools that successfully quantifies service, Compuware's offerings might come close to giving the firm a jump-start on service-level management, he added. General Motors Acceptance Corp., a $100 billion financial services firm, uses each Compuware tool separately but expects the trio to let it better analyze historical hiccups in network traffic, said Richard Britton, director of systems administration at the Minneapolis-based firm.



Compuware's upgraded EcoSnap tool should provide end users with enhanced process-failure diagnosis capabilities

"It is one step closer to what we need, but it is still a ways off from being a complete package," Britton said of the three tools.

For example, EcoSnap can be used in an organized test environment, but it doesn't alert information systems staffers of slow-running applications. "You need to run a graph to find this out" because the tool reports only what resources are being used, Britton said.

Mendoza said a large benefit of the tools is their association with Compuware's QA Center applications testing software. QA Center lets IT departments test applications before deployment to predict how a production environment might behave.

Depending on platform, the tools will ship by December. ☐

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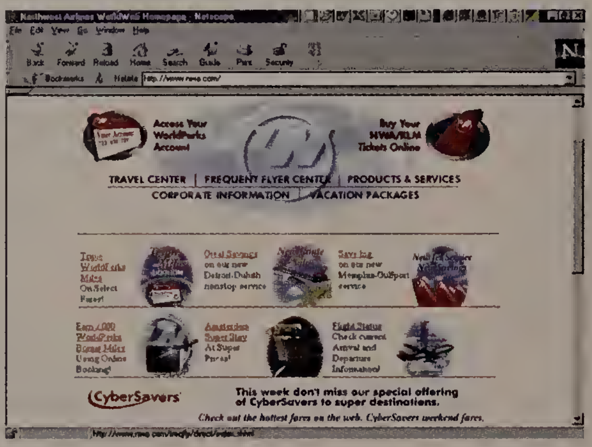
Northwest avoids disaster

▸ *Technology rerouted travelers during strike*

By David Orenstein

WITH THE HELP OF a passenger accommodation application, Northwest Airlines kept a bad customer relations situation from becoming a disaster during the recent pilots' strike.

As the Minneapolis-based carrier resumed full service last week, Robert Borlik, the airline's vice president of information systems, said a year-old application that finds alternatives for passengers of canceled flights had proved scalable enough to handle the strike.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Northwest used its Web site to keep travelers up-to-date during the strike

FINDING SOLUTIONS

The business rules of the system put a premium on minimizing the delay experienced by the customer and the cost incurred by Northwest. During the strike, which lasted from Aug. 29 to Sept 14, the system found alternative travel plans for about 55% of the airline's customers, Borlik said.

When it was first implemented last year, the $1.5 million application was expected to handle about a dozen flight cancellations on a normal day or a few hundred on an extreme day.

But each day of the strike, the system had to reschedule passengers on all 1,700 of the airline's canceled flights. In total, about 80,000 to 100,000 passenger reservations needed to be rebooked daily, if possible.

The application was written in C and was deployed on a Unix platform running on an IBM RS/6000 server. To interface with its reservation service, WorldSpan LP, the carrier used BEA Systems, Inc.'s Tuxedo middleware. To increase its bandwidth to handle the extra volume, Northwest installed an extra T1 line, Borlik said. "It was really easy for us to scale up the process," he said.

Employees in the Minneapolis/St. Paul, Detroit and Memphis airports were equipped last year with PCs so they could more easily navigate the options the software presented. Northwest plans to roll out the workstations internationally over the next year, Borlik said.

Previously, employees had dumb terminals that required users to specifically call up information about flight schedules. The new clients pop up customer data such as itineraries and service histories.

The system also reminds workers to mention special offers and other promotions to passengers.

Meanwhile, frequent fliers were able to track the status of their reservations on Northwest's World Wide Web site (*www.nwa.com*). The company also posted cancellation notices on its site.

Travel consultant Robert Langsfeld at Langsfeld Fazio & Associates in Crystal Bay, Nev., said Northwest made an earnest effort to make passengers' lives easier. "I'd give them a pretty good grade . . . at least a B," he said.

NEED FOR TECHNOLOGY

Northwest's customer service ratings have traditionally lagged behind those of other airlines, partly because of its strained labor relations, Langsfeld said, so the airline has needed to ensure that at least its technology keeps pace.

"The software they're putting in is competitive," he said. "It matches other tools that are out there."

Langsfeld said airlines in general have been working hard to improve their customer service computer systems because flying is becoming more complex, with overbookings and longer check-in lines, for example.

Although Northwest and observers said the carrier managed the strike well, the airline couldn't completely mitigate the strike's damage to its long-term business. It lost $26 million in revenue during each of the 15 days of the strike.

And Mary Auvin, a spokeswoman for 3M Co., which sends 300 to 400 employees through the Minneapolis/St. Paul airport each day, said her company suffered during the strike and wants to encourage other airlines to better serve the airport.

"We'll use other airlines more often," she said. □

Sybase unit to aim apps at new devices

By Stewart Deck

Database vendor Sybase, Inc. has decided to spin off a new division to develop sales force automation and database applications for handheld computers and embedded devices.

Sybase officials said the company's Adaptive Server Anywhere mobile database will be the first core technology for much of the new division's efforts.

"Our biggest challenge will be educating people on the possibilities in these markets," said Terry Stepien, who was appointed to head the 300-person mobile and embedded division.

The division will have its own research and development, sales and marketing and customer support teams based in Sybase's Waterloo, Ontario, offices.

"What Sybase is really going after is the embedded device market," said Anne Thomas, an analyst at Patricia Seybold Group in Boston. "They're looking to embed databases in devices ranging from network controllers and routers that need a database to vending machines and cell phones."

With databases in those types of devices, users can precisely track events and then save them in a retrievable form, Thomas said. "When you can retrieve it, it's much more valuable than just a log file," Thomas said.

"There's going to be explosive growth in these types of devices next year," Thomas said, "and there's a really big opportunity for Sybase there."

Although Sybase is early among major database vendors, Oracle Corp. officials said last week that company also is looking to move into the embedded device market.

Software ties pagers to handheld devices

▸ *Technology sends E-mail via infrared links*

By Matt Hamblen

YOU CAN RUN from E-mail, but it's getting harder to hide.

A software package unveiled last week uses infrared connections to convey text messages from pagers to PalmPilot handheld devices. That means a sales manager in New York can message an agent in Los Angeles about a new customer — if the agent is carrying a PalmPilot and pager.

Dallas-based JP Systems, Inc. last week announced BeamLink, wireless messaging software that helps link PalmPilots equipped with infrared connections to AccessLink II two-way pagers from Glenayre Technologies, Inc. in Santa Clara, Calif. JP Systems will expand its software to Windows CE handhelds in a month, as well as to other pagers.

With BeamLink, users can send formatted messages with attachments from a PalmPilot and write longer E-mail messages than a two-way text pager allows, according to the company and analysts. Also, a message received can be formatted to that user's PalmPilot address book and can be synchronized with a user's PC-based data.

Both PalmPilot and Windows CE platforms already accept clip-on pagers, but analysts warned that those pagers burn out handheld batteries in a few hours, depending on how much they are used. Pagers can also be attached by a cable to handhelds.

THE TIES THAT BIND

"I've got a two-way pager and a PalmPilot, but I need a cable to connect the two, and that's constraining," said Chris Cawein, a systems support manager at Federal Express Corp. in Memphis.

Other users said the infrared connection sounds nice, but they wished they could have one device combining the pager and handheld and that didn't chew up battery life.

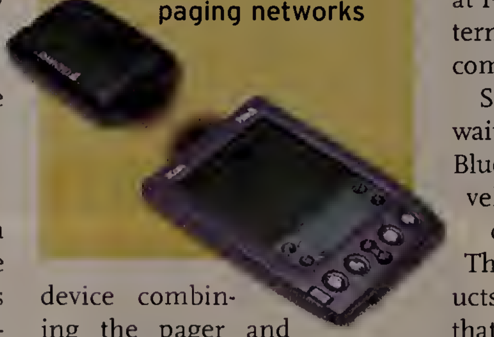
E-MAIL ANYWHERE

Product: BeamLink fromJP Systems, Inc.

Price: $49.95

Function: Links PalmPilot and Palm III organizers that have infrared ports to two-way AccessLink II pagers from Glenayre Technologies, Inc.

Networks: Currently on the SkyTel and MCI paging networks



"People want to carry one device, and there's no reason to support paging through the [personal digital assistant] if you still have to carry a pager," said Peter Mojica, vice president of research at First Union National Bank's capital markets division in Charlotte, N.C. The division supports about 500 handheld users on the Windows CE platform.

"It's a very attractive prospect to get rid of all the cables you have in the back of a computer, but the ideal would be to have the pager and handheld in one device," said analyst Jill House at Framingham, Mass.-based International Data Corp., a sister company to *Computerworld*.

Some users may choose to wait for the development of the Bluetooth wireless protocol, developed by vendors that include Intel Corp. and IBM. That protocol will lead to products in the middle of next year that allow wireless connections between handheld devices over a short-range radio link, House said. That would extend required synchronization distances from inches to feet, she added. □

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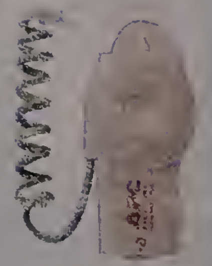

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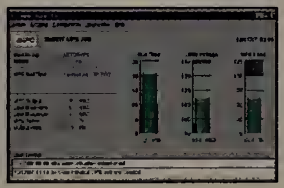

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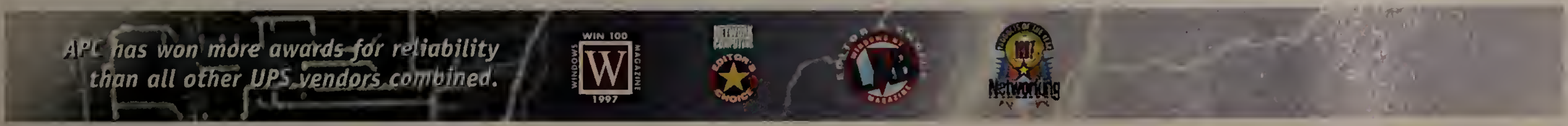
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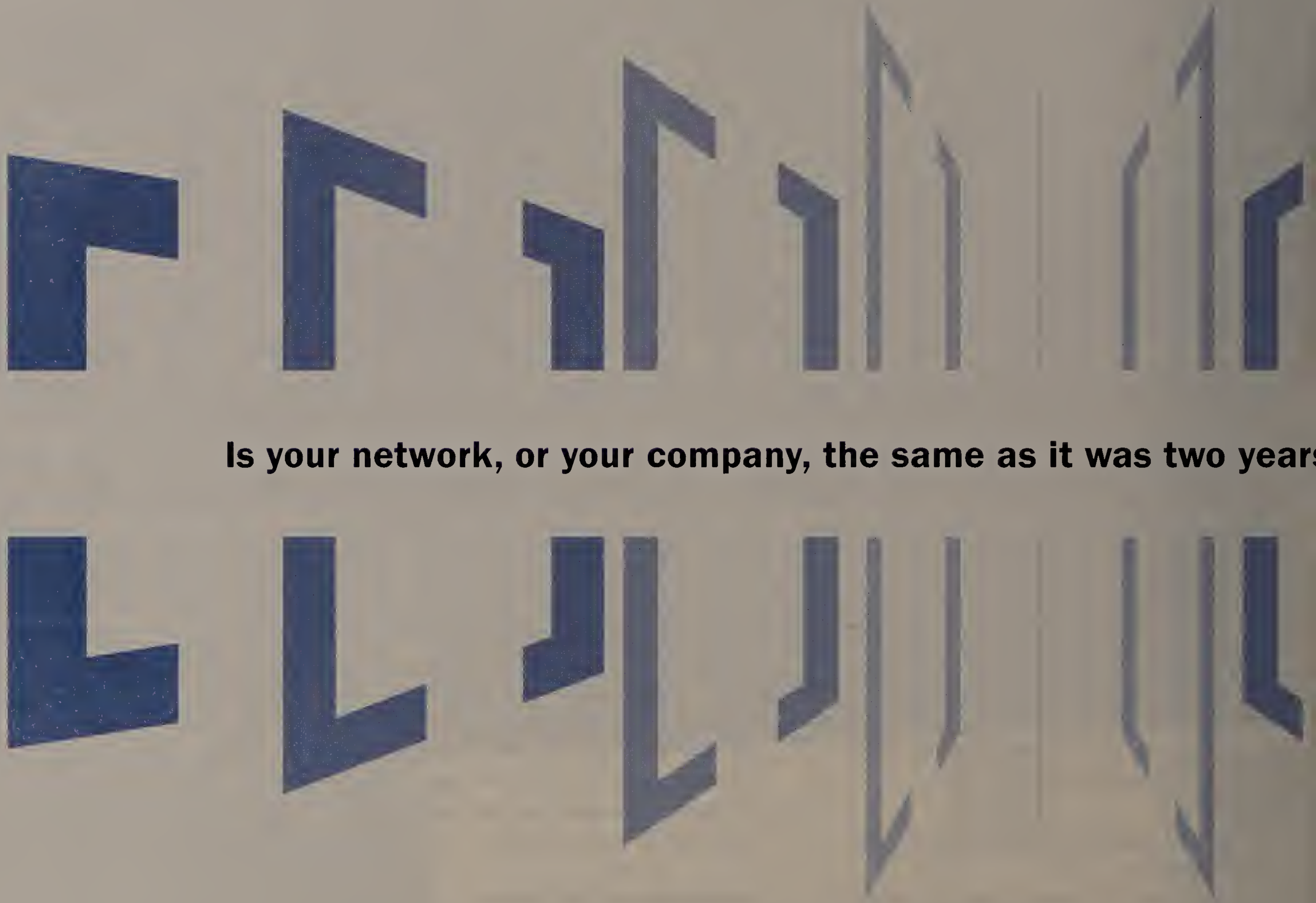
Is your network, or your company, the same as it was two year

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ago? Neither is Windows NT Server 4.0.

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Dell completes PowerEdge family

▸ *Tackles market challenge with new midrange server*

By April Jacobs

DELL COMPUTER CORP. last week debuted the missing piece to its line of servers — the midrange PowerEdge 4300 — in a bid to round out its server offerings to fit the bill for everything from file-and-print to database applications.

Dell, based in Round Rock, Texas, in April launched its latest PowerEdge family, with low-end Pentium II-based 2300 servers. It followed up in June with a high-end Xeon server, dubbed the PowerEdge 6300. Its latest addition, the 4300, is intended to fit in between.

"We are really interested in the 4300 because it can give us better performance than a really low-end server," said John Atkinson, director of technology infrastructure at San Francisco-based NextCard, an online banking company. Atkinson said his company can use more than a low-end server, but it doesn't want to spend the approximately $50,000 that a high-end server can cost.

Dell, which had carved out a niche for itself in the low-end server market, said it is branching out in response to customer requests for greater server equipment service and support from key vendors.

"We try to go to single-source providers to get volume discounts and for training purposes," said Joel McKnight, manager of real-time systems at Williams, an energy and communications company in Tulsa, Okla. He explained that supporting fewer hardware platforms means less training hours for both support staff and systems users, from desktops to servers.

Williams also is waiting for several PowerEdge 6300 servers for a first-time Windows NT-based database application. The company needed NT-based servers for the application because it wouldn't run on a different operating system.

"For our NT infrastructure, Dell's suite of products fills in nicely" based on their price and performance compared with other vendors' hardware, McKnight said. "If we weren't confident in NT and the hardware platform, we wouldn't have made the commitment."

Dell faces a challenge making inroads into the midrange server market because the system integration services that users need. – John Dunkle, Workgroup Strategic Service

MARKET STANCE

The PowerEdge 4300 will replace the 4200 model and will be available this week. It is priced between $4,400 and $11,000 and features single or dual Pentium II processors and up to 1G byte of memory and 9G-byte hard drives. The servers come with the Windows NT server operating system and Hewlett-Packard Co. OpenView Network Node Manager.

Dell's server offerings on the higher-end have come later in the game than rivals such as Compaq Computer Corp., observers said.

Dell faces a challenge making inroads into the midrange server market because of the system integration services that users need, said John Dunkle, an analyst at Workgroup Strategic Services, Inc. in Portsmouth, N.H. Dell's channel partners, for example, would rather spend time and effort providing services to sites buying the more costly high-end servers, Dunkle said. ☐

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GPS

DEFINITION: The Global Positioning System (GPS) is a "constellation" of 24 satellites that orbit the Earth at a height of 10,900 miles, making it possible for people using ground receivers to determine their geographic location within 10 to 100 meters. The satellites use simple mathematical calculations to broadcast information that is translated as longitude, latitude and altitude by the Earth-based receiver.

You *can* get there from here

By Kim Girard

THE U.S. DEPARTMENT OF DEFENSE launched GPS more than two decades ago, and today, companies are turning to the satellite technology to collect accurate and useful geographic information critical to improving their market edge.

For example, American Airlines uses a Global Positioning System (GPS)-based navigation and flight management system to find the shortest route between one city and the next. That shortens flight times, saves on fuel costs and increases the number of daily flights.

But use of that technology goes far beyond the flight deck. For example, San Francisco-based Pacific Gas & Electric Co. uses GPS to map gas lines. Kentucky Fried Chicken's real-estate agents use GPS mapping to analyze the competition and decide where new franchises should be built. Ambulance crews in Boston cut their response times to 911 calls by using GPS to map the fastest routes to emergency locations.

For businesses, adding GPS capabilities to track cargo or manage fleets of vehicles is an investment well worth the money, says John Nitzke, an analyst at Forrester Research, Inc., a Cambridge, Mass.-based consultancy.

And as the cost of GPS drops, more companies are turning to the satellite technology. Industry experts say a company can reduce the price tag of a $50,000 mapping project to about $10,000 to $20,000 by replacing direct field workers and manual counting with a GPS mapping system. For example, a company that manually counted fire hydrants now can map them on a system and track them on a computer. If a fire hydrant is added to a particular area, all the information about it can be keyed into the system for future reference

The big GPS players include Trimble Navigation Ltd., Magellan Systems Corp., Leica Geosystems and Novatel, Inc. In the overall GPS market, worldwide growth of navigational systems installed in vehicles is expected to dominate sales, exploding from about 1.5 million units sold last year to an expected 10 million units by 2002, according to Dataquest, a San Jose, Calif.-based consultancy.

"The obvious thing to do with [GPS] is to put it in cars," says Craig Mathias, president of Farpoint Group, an Ashland, Mass.-based consultancy. "It's an amazing system — a wonderful idea." Avis, Inc. and The Hertz Corp. have added GPS capabilities to their rental cars, and a growing number of auto manufacturers are luring new customers with the added perk of a GPS-enhanced car or truck. Those car-based GPS systems can lead drivers toward the right path to a local restaurant or hotel.

GPS also has enjoyed a recent popularity surge in the low-end consumer market with $99 handheld systems that guide hikers in the mountains.

And the technology soon will be integrated on the chip set used in cellular phones, the result of improved semiconductor technology and new Federal Communications Commission regulations, according to Xavier Pucel, an analyst at Dataquest.

The disadvantage of those devices?

"You'll always know where you are," Nitzke says. "And everyone else will know where you are, too." ☐

Kim Girard is a freelancer in Somerville, Mass.

AT ISSUE

Will the cost continue to drop?

Q&A *Brian Arellano, an engineering technician at Public Service Company of New Mexico in Albuquerque, talks about how the utility company has used GPS for two years to map out a customer service area that covers about three-quarters of New Mexico.*

Q: ***Can you describe how GPS is used by the utility?***

A: We use it for mapping. GPS leads us to the customer. Before using GPS, a transmission would go down, and it took time to get out there [and fix it]. Now, we place GPS receivers on [utility] poles. That gives us a base to where everything is. Before, [technicians] would pull out a 30-year-old piece of paper that tells them a location. Now, it's computerized with X and Y coordinates. They can pinpoint exactly where a [problem] is.

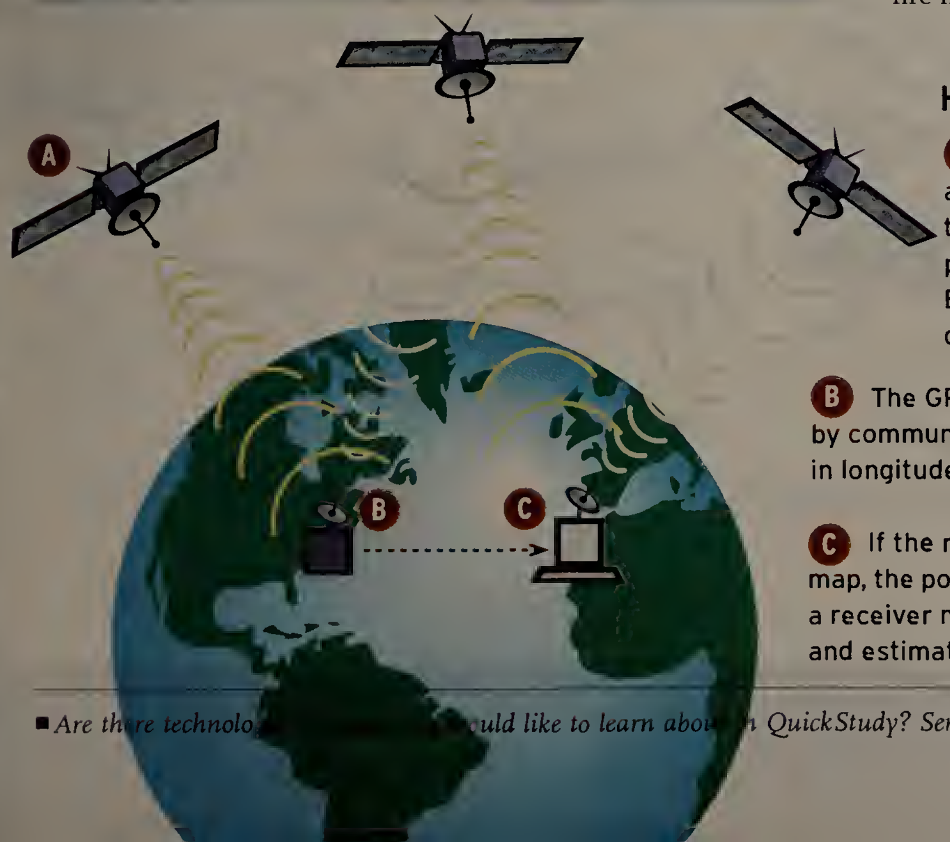
Q: ***Can you provide an example of how GPS has saved employees time and effort?***

A: The engineers used to go out to the field for every new project. Now they pull [the information] up on a screen. It shows a pole a hundred feet from a lot and shows where we need to run a cable. We know where the lot and the pole lines are, so we don't have to go out in the field anymore.

Q: ***How much did the system cost?***

A: About $60,000, including $10,000 for receivers and software and $20,000 for a bay station [which is used to correct data recorded in the field. The company uses Trimble Navigation's Pathfinder Office software and Pro Excel GPS receiver.]

Everything is computerized. If a customer loses power, the computer knows where the transformer is and can tell the line crew where the transformer is, and they can go fix it.



How GPS works

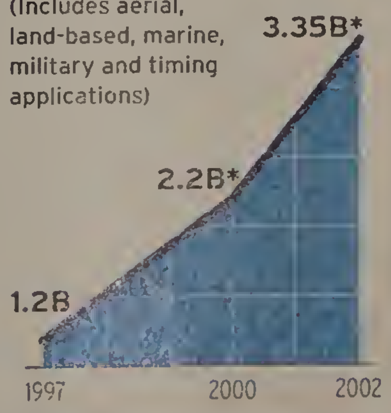
A Each satellite is equipped with a computer, an atomic clock and a radio. They enable the satellite to continuously monitor and broadcast its changing position and time. The satellite reports daily to Earth and figures its own position by knowing the distance from the satellite to the user.

B The GPS receiver on Earth determines its own position by communicating with a satellite. The results are provided in longitude and latitude.

C If the receiver is equipped with a computer that has a map, the position will be shown on the map. If you are moving, a receiver may also tell you your speed, direction of travel and estimated time of arrival at a destination.

Overall North American shipments of GPS equipment

(Includes aerial, land-based, marine, military and timing applications)



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OPINION

3-D visions I was coasting through the innards of a giant, $25 million turbine recently, watching the massive blades turning just an arm's reach away. I was not only surrounded by data, but also was actually experiencing it in another dimension — the three-dimensional, visual one. I kept expecting *The Twilight Zone*'s Rod Serling to show up and intone a few observations.

This compelling demo took place at the Ars Electronica Center in Linz, Austria, which uses 3-D visualization and virtual reality techniques to give skeptical business executives an up-close-and-personal look at exactly what their millions are buying from a local turbine manufacturer.

Back on our side of the Atlantic, I checked out a slew of other business applications at Silicon Graphics' Reality Center for advanced visualization. I watched virtual cars crash into one another in stress tests that found structural weaknesses that might otherwise go undetected. I flew over and under bridges to compare architectural options, and I got seriously nauseated from a spin in a virtual race car.

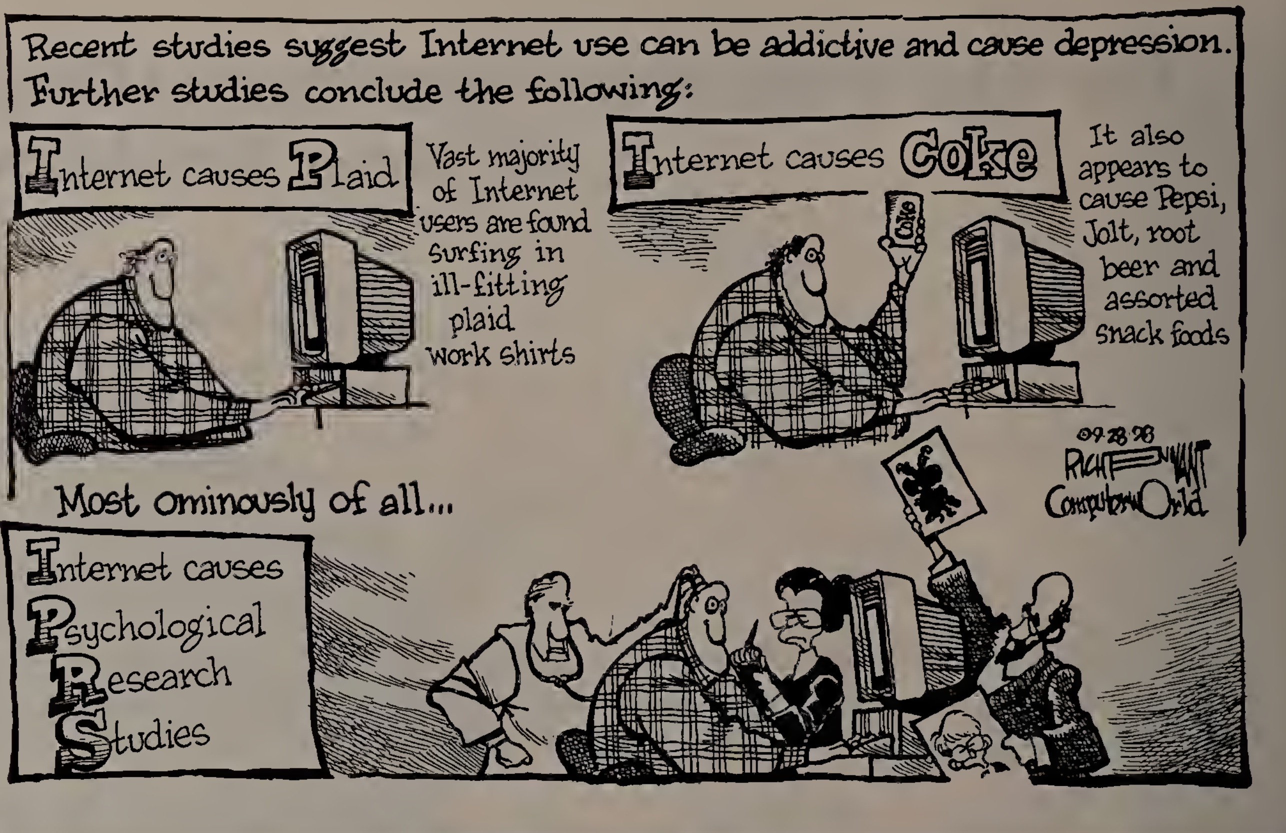
What all of that dabbling with 3-D visualization tools woke me up to was the sleeper technology of the coming decade. It enables the use of our most accessible tools for observation and processing — our eyes and our brains — to pull understanding and insight from an impossibly large morass of data.

All the stars seem to be aligned for this onetime niche technology to break into the mainstream. Chips keep accelerating in power and speed, and visualization software is rapidly descending into affordable PC price spaces. Database and enterprise resource planning vendors are stampeding to spatial data capabilities. Lucent Technologies recently launched a business that will market data-visualization software for data mining and decision-support. The final frontier is the Web, where the brisk adoption of Virtual Reality Modeling Language as the standard way to deliver 3-D content has been surprisingly conflict-free.

My bet is that once the 'net masses experience a few good 3-D visions, there'll be no turning back. I know I'll never look at turbines in quite the same way again.

Maryfran Johnson

Maryfran Johnson, *executive editor*
Internet: *maryfran_johnson@cw.com*


Recent studies suggest Internet use can be addictive and cause depression.
Further studies conclude the following:
Internet causes Plaid
Vast majority of Internet users are found surfing in ill-fitting plaid work shirts
Internet causes Coke
Coke
It also appears to cause Pepsi, Jolt, root beer and assorted snack foods
09-28-98
RICH TENNANT
ComputerWorld
Most ominously of all...
Internet causes Psychological Research Studies

LETTERS

More than one Y2K pioneer

Having just read editor in chief Paul Gillin's column in the Aug. 3 edition of *Computerworld* ["A Y2K pioneer seeks (and deserves) recognition"], I felt compelled to write about why no one would have cared about Bill Schoen and his year 2000 "foresight" back in 1984.

I'm sure there are hundreds of programmers like myself who saw the potential year 2000 problem coming even earlier than Schoen did in '84. But there are a few major reasons why no one cared. It wasn't a problem at the time, and there wasn't a programmer in his right mind who would have suggested to management that changes be made to existing standards (for example, using two-digit years to represent dates). The more pressing issues were running a day-to-day business, implementing enhancements and keeping costs down.

A whole bunch of us saw it coming. Many of us had ideas for solutions, but does that mean we were all Y2K pioneers deserving of recognition? No. But thanks for the thought.

Dave Schallert
President, OASYS Information Systems Consulting, Inc.
Littleton, Colo.
dschallert@OASYS2000.com

Bally site offers help, too

In response to your article ["<Your Company Name Here> sucks.com," CW, July 20], the Bally Total Fitness Sucks Web site contains more than a parody of the Bally logo and a monthly compilation of consumer complaints. It also contains information to help consumers resolve their disputes with Bally Total Fitness Corp., including contacts for Bally corporate departments, the Better Business Bureau, state attorneys' general offices and the Federal Trade Commission.

It is not accurate to describe *www.compupix.com/ballysucks/* as a "hate" site. I wish mention would have been made that the FTC filed a consent decree against Bally in 1994 for the same kinds of practices that hundreds of consumers still complain about in 1998.

Barbara L. Woodcox
Cincinnati

P&G 'net move nothing new

Michael Schrage's column ["Bad news for high-rent consultants," CW, July 27] is of absolutely no value.

He lauds Procter & Gamble for listening to a group of self-serving interns from Harvard University and the University of Chicago. He writes a long dissertation on how P&G bought in to a recommendation that it implement Internet access for everyone. Being a research associate at MIT, Schrage should realize this is standard technology at most schools of higher learning. What surprises me is that P&G doesn't have companywide Internet access and that a group of interns had to recommend it. It sure doesn't put it on the leading edge of technology, and Schrage should know that.

Universal access doesn't put P&G on the leading edge.

Bruce Young
Highlands Ranch, Colo.
byoung1@earthlink.net

Amelio's humane face shone

The page 1 tease for Mr. Amelio's interview, "Gil Amelio unloads" ["My tough luck," CW, July 27], was inaccurate and emotionally based. Not only did Amelio not "unload," but he did quite the opposite. He put a humane face on CEOs, who are today mostly portrayed as monsters.

Joe Comunale
Queens College
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Good Web info worth a price

Business information on the Web can be cheaper and more comprehensive and up-to-date than information delivered any other way, but only if people are prepared to pay something for it. So Tim Andrews' column ["Are people ready to pay for good info on the Web?" CW, July 27] was an encouraging signpost for those trying to create information Web sites. He's going to be much quoted in business plans around the world.

Tim Johnson
London
Editor, Point-topic.com

Computerworld welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

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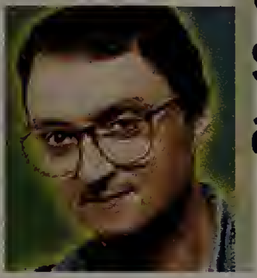
Letter from Japan, where 'net adoption lags

Lionel Dersot

Japan's foot-dragging attitude toward embracing the Internet has probably been pondered more outside the archipelago than within.



I've lived here 15 years, and I think I can explain the many — often contradictory — reasons for the lack of enthusiasm. Japan's PC penetration rate in the home, estimated at about 15%, is certainly low. An outrageous telephone billing system also is a powerful repellent to going online.

The media in Japan, too, share a heavy but seldom-mentioned part of the responsibility. When the digital waves reached the nation in 1995, the media drew a stereotyped image of "Internet mania." Salarymen — white-collar workers — were depicted sporting a cup of hot beverage in one hand, acting the perfect Internet cafe surfer, patiently waiting for pretty but useless images to crawl at a snail's pace onto their monitors.

In a nation struck mute, the tire-smoking, high-stepping Web is an alien medium.

At the same time, "Cool!," "Neato!" and other condescendingly youthful words, so unfamiliar to stiff and introverted Japanese society, were blasted a-go-go at audiences by clown-like minor media stars who proclaimed themselves " 'net generation gurus."

Now, the party's over. The number of Internet service providers has shrunk dramatically from 1995's frenzied high of nearly 1,000.

A growing (but still small) number of Japanese Web-savvy individuals have a hard time finding useful information and practical services on Japan's gossipy, anecdotal, superficial local Web pages. (Just try to find an actual train schedule on East Japan Railway's site.)

These are all contributing factors. The real problem, though, has deeper — and more troubling — roots.

Japan's economic breakdown has revealed an acute social crisis: The population is speechless, unable to give voice to its malaise. My time here has convinced me that the Japanese people's ingrained inability to communicate is at the core of the current economical and social stupor.

The sacred status of consensus over personal opinion and individual needs functioned well as long as the illusion of insularity made sense. But the shrinking world — made all the smaller by the no-boundaries, speed-of-light Internet — has upended the illusion.

The indifference of Japan's youth to their nation's sociopolitical structure is not the result of a voluntary, Zen-like choice of self-effacement over opinionated speech. Rather, it is simply the result of a school system in which rote learning and fierce competition thrive — and clash with the contradictory requirement of keeping an "average attitude" at all costs.

That is a sure self-expression inhibitor, and I see it every time I speak at local universities to still-life audiences. Today's Japanese university students are apathetic beyond belief, utterly unable to conquer their uneasiness about asking a question in front of others (even their peers).

In Japan, a social catharsis is required. And the Internet, if embraced in all its high-stepping, tire-smoking, damn-the-torpedoes glory, could contribute.

But the medicine is horribly hard for this nation to swallow. For the Web, far from culturally neutral, is heavily charged with a particular vision of human relations, speech and rhetoric that has no roots in Japan.

Although we all are blasted every day by the cool visual aspects of the medium, the images are just a sideshow. It is the words, the speech, the discourse, the capacity to express an opinion that makes the 'net what it is.

Thus, in today's Japan, where discussion, argument and debate have been deactivated, the Internet is an alien medium indeed. ☐

Dersot, a French national who lives in Tokyo, is a freelance writer specializing in interactive multimedia content. His Internet address is dersot@gol.com.

Year 2000 is just the beginning

John Gantz

I just read the September issue of *IEEE Spectrum*, the monthly publication of the Institute of Electrical and Electronics Engineers, and discovered that the year 2000 problem is just the tip of an iceberg. If that iceberg is as big as author Capers Jones suggests, we'll spend most of the rest of our careers dealing with date-field problems.

We'll be sideswiping the iceberg for the next 50 years. The year 2000 problem is the first point of impact — with about 36 million applications affected, according to Jones.

After that, we face a problem almost as big: conversion to the euro.

The euro is particularly insidious. First, it comes at a bad time — on the heels of the largest software project ever. Second, it affects not only currency conversion programs (some of which can't handle the addition of a new currency), but also any program or file in which product prices are kept, such as inventory records. Those applications won't easily handle pricing in two currencies or direct conversion to the euro. Finally, right now, there are no electronic font sets available that can handle the x-like euro symbol.

But our iceberg has more than two killer protuberances. The Global Positioning System's (GPS) 20-year dating system will roll over next August, when the date counter is reset to zero. That won't be a problem — if all the programmers who ever built an application that used the GPS date field read and understood the fine print in the GPS standard, which explains that resetting. Right.

Two weeks after the GPS rollover, we encounter another floe: Sept. 9, 1999, will appear in many date fields as "9999," which also means "end of file" in many programs. More potential problems.

Other unforeseeable glitches could hit on Feb. 29, 2000, which is the first leap day in a century year evenly divisible by 100 since the year 1600. Most of today's programs understand the complex rule by which 1900 isn't a leap year, but 2000 is — but what about legacy programs written years earlier?

Between 2025 and 2050, we collide with the back end of the iceberg when the U.S. runs out of 10-digit phone numbers and 9-digit Social Security numbers. Those will be major disruptions, but trying to deal with them today is like trying to deal with year 2000 in the 1970s. Don't we have to worry about some asteroids hitting Earth first?

Sadly, IT will probably be forced to fix each date-field problem as it arises.

The easiest fix, Jones suggests, is to either establish a uniform way to represent dates, to be used in all countries in all applications (an International Standards Organization standard was proposed for that), or add a 1- to 4-digit date key to the date field that explains what kind of representation the date field uses.

The latter plan, which uses software programmers, not treaties, to solve problems created by software programmers, would be yet another conversion effort. But once it was completed, we could forget about those date-related problems and get about the business of creating value in our software.

I dunno. Business operates paycheck to paycheck; I suspect IT will wait and be forced to fix each problem as it arises.

But read Jones' article and think about it. Maybe you can at least make your way over to the other side of the boat. ☐

Gantz is senior vice president at IDC in Framingham, Mass. His Internet address is jgantz@idcresearch.com.

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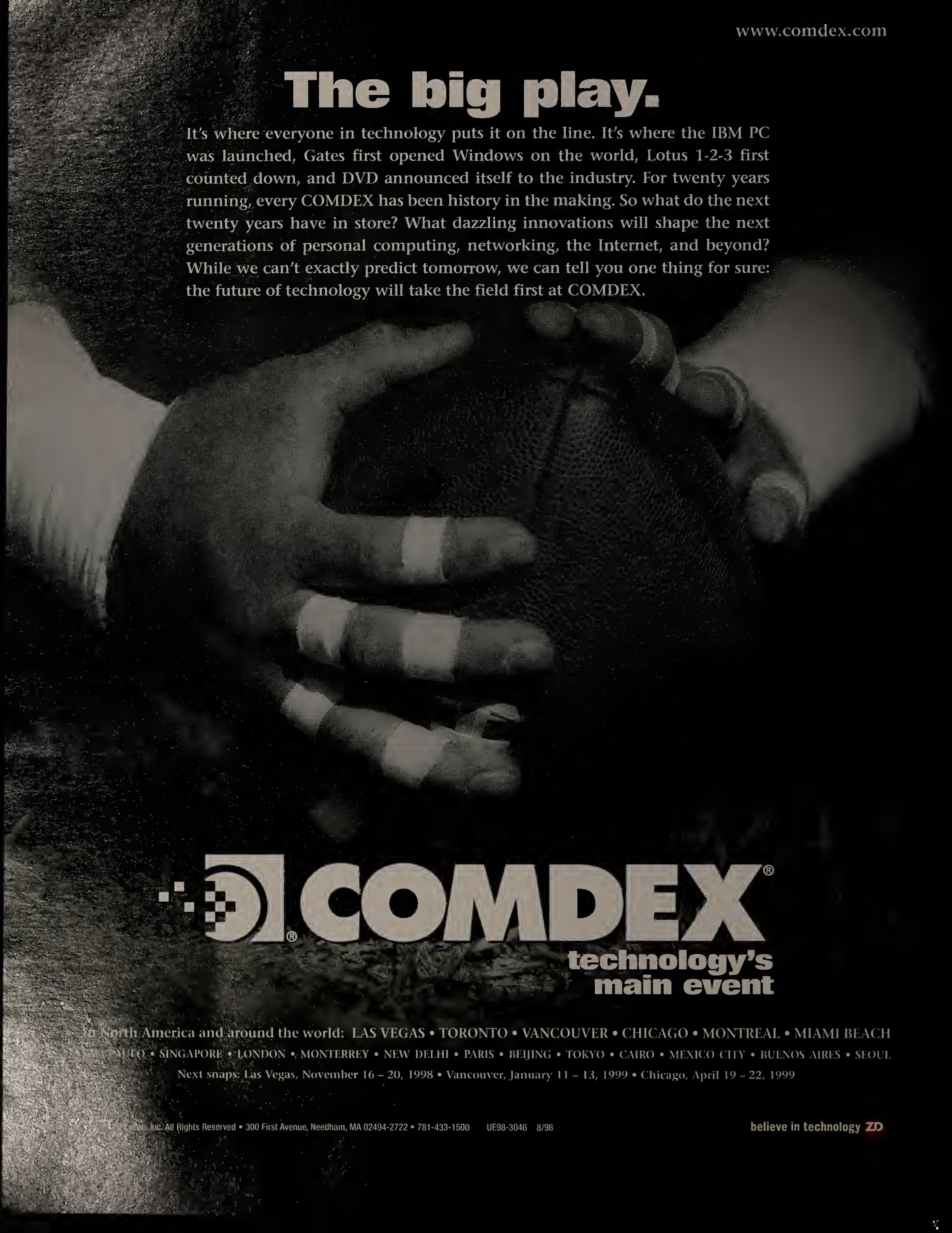

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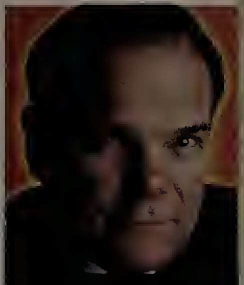
believe in technology ZD

The E-Business Community must be embraced

Don Tapscott

Though it's been with us less than two decades, it's increasingly evident that today's state-of-the-art virtual corporation is really just a transitional structure that's nearly obsolete.

New and superior forms of doing business, based on the Internet, are emerging. The most important of these is called the E-Business Community.



BLUEPRINT TO THE DIGITAL ECONOMY

E-Business Communities are networks of suppliers, distributors, commerce providers and customers that carry out a lot of communications and transactions through the Internet and other electronic media. They allow the creation and marketing of new value for customers in ways that dramatically reduce time, share risks and lower costs. Digitally savvy individuals and organizations in every industry are beginning to use this model.

The virtual corporation, so recently state of the art, is obsolete.

The virtual corporation's death is imminent because of its rigid core network technology of electronic data interchange (EDI) — a technology that drives a hub-and-spoke model of industry structure. The virtual corporation is hub-centric, with the hub controlling interactions and value-creation processes. One hub, one boss.

Not for much longer. Today's dramatically more robust and flexible network technologies are enabling a more flexible and effective corporate structure. Communities of companies are using networks to trade with one another and create products or services that draw on the talents of many players. At the heart of it all is the Internet, a web of connections where nodes of power and coordination stand out — but with no pure hubs comparable to those of the EDI era. In an E-Business Community, the leader doesn't wield total control, but rather shares authority with its partners.

In Hollywood, a high-speed, high-bandwidth network established by Sprint allows movie companies, animators, film editors and others to work together online in real time. The impacts are impressive: Months are shaved from production schedules and companies can work with creative professionals anywhere, as long as they're on the network. Collaboration tools such as online film editing and videoconferencing enable producers, directors and editors to quickly solve problems and reach decisions.

In the software vendor community, the leading E-Business Communities are Wintel (led by Microsoft and Intel) and Java (led by Sun, IBM, Oracle and Netscape). Often, a single company is a member of multiple E-Business Communities: Microsoft and Intel are involved in the Java community, and IBM, Oracle and Netscape are active players in the Wintel community. High-technology firms such as Nortel and Cisco have created end-to-end digital information systems that tie distributors, component suppliers and manufacturers into highly efficient cooperative supply networks. By crafting a corporate culture that focuses on core competencies and by using digital technology to share information with supply network partners, Cisco and Nortel have emerged as time-to-market leaders in a field where products have a half-life measured in months.

E-Business Communities are changing the rules of competition and mobilizing people and resources to new levels of performance. Managers in all sectors of the economy need to master and implement an E-Business Community strategy if they intend to remain effective. Rather than building internal information systems, companies should embrace the Internet as a new infrastructure in the creation of wealth and the evolution of the business structure. ☐

Tapscott is chairman of the Alliance for Converging Technologies. He is author of six books, including Paradigm Shift, The Digital Economy *and* Growing Up Digital: The Rise of the Net Generation. *Most recently, he co-edited* Blueprint to the Digital Economy: Wealth Creation in the Era of E-Business *(McGraw-Hill, 1998).*

IT risks multiply with globalism under fire

David Moschella

How quickly things can change. Just 12 months ago, peace, prosperity, free markets and technology combined to promote a powerful and widespread spirit of global optimism.

All sorts of economists and technologists who should have known better were predicting a long boom, where the old rules of market instability and painful business cycles would soon become inoperative.

Of course, deep down we all knew this was just so much globaloney. One didn't have to be a historian to know that during the 1920s, a similar burst of wonderful young technologies — electricity, radio, automobiles and telephony — gave rise to similarly naive forecasts. I can remember a year ago, sitting around with friends saying: "Sure, we all know that tough times will eventually return, but the trick is to figure out exactly how, when or why." No one really could.

But as Shakespeare wrote, "When sorrows come, they come not in single spies, but in battalions." Today, the list of woes and fears extends to virtually every corner of the globe: Japan, Russia, Bosnia, Kosovo, Indonesia, North and South Korea, Malaysia, Thailand, Hong Kong and Taiwan, nearly all of the Mideast, Afghanistan, India and Pakistan, Algeria, sub-Saharan Africa and quite possibly much of Latin America. As the troubles have mounted, world leadership has moved in the opposite direction. Among President Clinton, Russian President Boris Yeltsin, Japanese Prime Minister Keizo Obuchi, the International Monetary Fund and the usual silence from Europe, world leaders have seemed singularly unprepared for the task. All this can't bode well for the IT business. Over the past few years, technology, the Internet and globalism have become largely inseparable. In assessing the risks posed by today's crises, I would cite three overriding concerns: money, cooperation and confidence.

Economically, a significant slowdown in the U.S. economy would likely have an enormous impact on the IT industry. During the U.S. recession of the late 1980s, U.S. IT spending slowed almost to a standstill.

Given that most companies still lose money on the Web, the Internet would almost certainly be a prime area for any necessary cutbacks. It's easy to forget that during the Great Depression, sales of new telephone services temporarily fell sharply, and the introduction of commercial television was delayed for many years.

Perhaps more worrisome, the smooth evolution of the Internet depends on a strong spirit of global cooperation. Technical issues such as encryption, privacy, copyright and domain names will require a great deal of international trust, coordination and goodwill. Those attitudes in turn rely on a shared belief in the positive aspects of global harmonization. From a business perspective, Internet investing, retailing and publishing could easily be curtailed by national laws that intentionally opt out of certain worldwide practices.

On a more personal level, we should never forget that much of today's Internet enthusiasm is based on faith and confidence. No one knows whether various online businesses will work or not; Web entrepreneurs are driven by their underlying belief in the power of information technology. That's also true at a global level. There's only one real test of whether free trade and open markets are good ideas: The systems must deliver the goods.

As doubts rise in this area, they can only hold back the forces of change. Globalism certainly isn't dead, but it too moves forward in cycles. ☐

Technology, the Internet and globalism are now largely inseparable.

Moschella is an author, independent consultant and weekly columnist for Computerworld. *His Internet address is dmoschella@earthlink.net.*

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500 plus	66 hours

Source: Kennedy Information Research Group, Fitzwilliam, N.H.

Faster loan processing

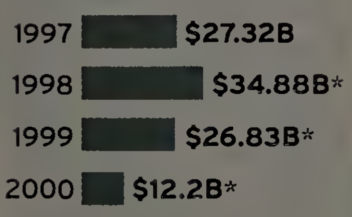
Royal Bank of Canada said its loan processors are able to process 50 to 100 loan applications per day — compared with eight to 12 applications previously — since installing CreditRevue 2000, a Unix-based software package from Credit Management Solutions, Inc. in Columbia, Md. The application supports the bank's lending services, which allow car buyers to obtain their loans at a dealership.

Suppliers' Y2K survey

A year 2000 survey will be sent by 38 large retailers to about 82,000 of their suppliers, asking them whether they will be able to provide needed materials and services, such as telecommunications, when the millennium date change occurs. The National Retail Federation in Washington, which is coordinating the survey, will post the responses on a World Wide Web site accessible to retailers.

HITTING THE PEAK

Spending on year 2000 by U.S. companies



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Base: 500 U.S. executives

Source: International Data Corp., Framingham, Mass.

Can games be training tools?

▸ *Yep. Users say they're great for young workers*

By Nancy Dillon

EVER FEEL GUILTY about playing a game of Solitaire on a company computer? You wouldn't have to if you worked at Bankers Trust New York Corp.

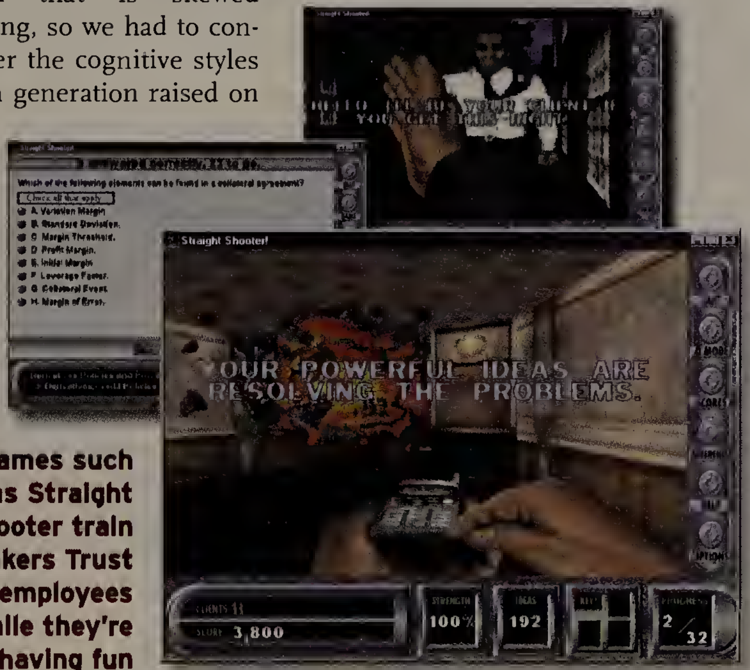
In fact, you'd be encouraged to pull out your joystick and even involve co-workers in competitions.

That's because the New York-based, international bank holding company has added gameware to its corporate training arsenal.

Employees who need to review internal company policies play intranet-based games such as Sexual Harassment Solitaire.

And employees who need to learn the new rules governing derivatives trading play Straight Shooter — a three-dimensional desktop game. Developed in-house, it resembles the popular consumer games Doom and Quake.

"Bankers Trust has a population that is skewed young, so we had to consider the cognitive styles of a generation raised on *Sesame Street*, MTV, action movies, Nintendo and the Internet," said Marc Prensky, vice president of human resources and head of the bank's in-house game-design division.


Which of the following elements can be found in a collateral agreement?

Check all that apply

A. Variation Margin
B. Standard Deviation
C. Margin Threshold
D. Profit Margin
E. Initial Margin
F. Leverage Factor
G. Collateral Event
H. Margin of Error

YOUR POWERFUL IDEAS ARE RESOLVING THE PROBLEMS.

Games such as Straight Shooter train Bankers Trust employees while they're having fun

"These are people on the cutting business edge, and handing them a 2- to 3-inch book of dry policies isn't effective. Games bring the level of engagement that's needed," he said.

Prensky's game group introduced Straight Shooter — its first fantasy-style endeavor — in January. The company started three years ago with simple quiz games; its 11th game is due in December.

All the games were designed as shells with customizable content templates. And each can connect with a centralized database that tracks end-user scores and game completion. For users uncomfortable with the medium, each game also provides a straightforward, question-only mode.

Computer-based training is a definite trend, analysts said. Ann Graham, an analyst at Stamford, Conn.-based Gartner Group, Inc., has studied the Bankers Trust implementation in-depth. She said its "tremendous flexibility" is one factor fueling the trend.

"Online training is good for those who like to do things fast and on their own," she said. "And games are great, because they can employ humor and fantasy to help you learn without even knowing that you're learning."

Flexibility was certainly a fac-

Video games, page 40

Sports analysis predicts future

By Stewart Deck

THE CHICAGO WHITE SOX know that good things will often happen when slugger Frank Thomas bats in Comiskey Park at night against the Detroit Tigers' right-handed pitchers.

They know because intricately detailed data from Stats, Inc. in Skokie, Ill., told them. The number-crunching firm keeps exhaustive statistics for professional baseball, as well as football, hockey, soccer and basketball.

"Our game is extremely subjective in many ways," said Dan Evans, assistant general manager of the White Sox, "and they give us data in a very objective form that helps us both substantiate what we know and prove some theories incorrect, such as the overblown value of the sacrifice bunt."

A Stats, Inc. analysis convinced Evans that the sacrifice bunt, long considered a strategic asset in baseball, doesn't pay off in enough cases to make it a worthwhile part of the team's regular arsenal.

> "Getting [the data] into the database as quickly as possible is our biggest challenge."
> – Stats, Inc.'s Mike Canter

Stats, Inc. employs between 300 and 500 reporters (depending on the season) who carefully chart what happens during each play of every game. Three reporters covering each game dial in to the company's servers just after the national anthem ends and begin transmitting data.

For baseball, they detail "everything that takes place from the time the ball leaves the pitcher's hand, and the distance and direction of every hit ball," said Marty Gilbert, chief operating officer at Stats, Inc.

The challenge isn't getting a big enough bandwidth pipe to handle the data coming in, said Mike Canter, Stats, Inc.'s information systems director, because it arrives in such small pieces, approximately one byte at a time. "Getting it into the databases as quickly as possible is our biggest challenge," he said.

To make that happen, Canter has put in place custom soft-

Sports analysis, page 40

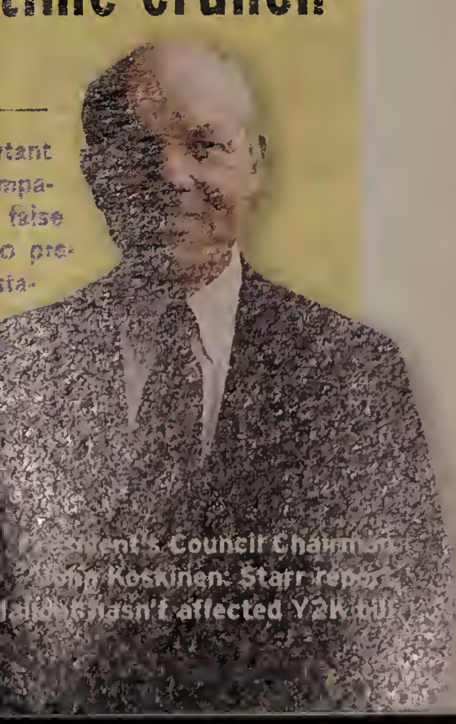
Y2K act faces time crunch

By Matt Hamblen

Though it has cleared one important hurdle, a bill that would protect companies that make unintentionally false statements about their year 2000 preparedness still faces plenty of obstacles before it can become law.

The Year 2000 Information and Readiness Disclosure Act passed the Senate Judiciary Committee unanimously on Sept. 17, but it still must pass the full Senate and House. The bill encourages compa-

Year 2000, page 40


President's Council Chairman John Koskinen: Starr report fallout hasn't affected Y2K bill

Sports analysis

CONTINUED FROM PAGE 39

ware that sorts each tiny piece into preset forms — left-handed or right-handed pitchers, pitch count, the teams involved and so on — and guides the data into the firm's Oracle Corp. and Computer Corporation of America databases.

Because Stats, Inc. takes in data on the smallest event level, it can then pose very precise queries to fill its clients' requests.

"We can pull out all sorts of combinations, such as 'How does someone hit against a particular pitcher in night games on Thursdays?' " Canter said with a chuckle.

The bulk of its clients aren't sports teams, however. Newspapers, magazines, World Wide Web sites, television and radio all use the firm's resources.

It provides the information for the baseball and football box scores that The Associated Press distributes to the nation's newspapers.

Also, much of the statistical chatter television and radio announcers use to fill the gaps between plays springs from charts, reports and books published by Stats, Inc.

OTHER CLIENTS

The company also provides statistical data for online sports fantasy leagues, trading card companies and electronic-game companies such as Sony Corp. and Electronic Arts, Inc.

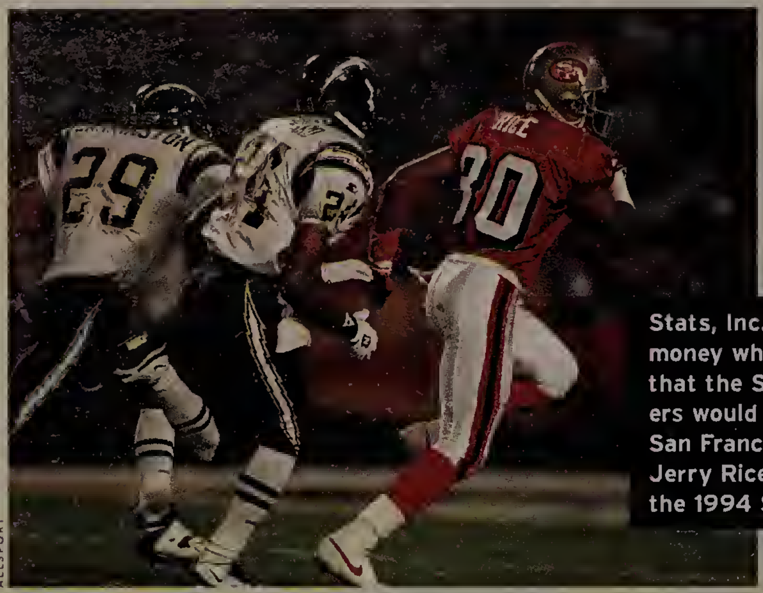
And it has a publishing arm that puts out about 15 books a year.

This season, Major League Baseball asked Stats, Inc. for help in determining where Mark McGwire's and Sammy Sosa's record-setting home runs would likely fall [CW, Sept. 14] and moved extra security personnel into specific sections to handle the crowds.

Tim Connors, a spokesman for the Boston Red Sox, said such data is so comprehensive and exact that it "helps us easily figure out many things just by looking at the numbers." For competitive reasons, Connors declined to be more specific.

But the White Sox's Evans did shed a little light on the subject.

"[It offers] a chance to see what's going on within the game," Evans said of the Stats, Inc. data. "It is an extremely valuable resource for player, club and game evaluation." □



ALLSPORT

Stats, Inc. was right on the money when it predicted that the San Diego Chargers would be burned by San Francisco 49ers' star Jerry Rice (in red shirt) in the 1994 Super Bowl

Rice Bowl run was forecast by Stats

How accurately can someone predict how professional athletes are likely to perform in a particular situation?

In 1994, the San Francisco 49ers were the National Football League team whose receivers gained the most yards running after catching short passes. In that year's Super Bowl, they faced the San Diego Chargers, the team that had allowed receivers to gain the most yardage after catches. Stats, Inc. told the network broadcasters to prepare for this combustible combination, and in his team's first possession of the game, San Francisco wide receiver Jerry Rice caught an eight-yard pass and ran 70 yards for a touchdown.

And, during 1987, St. Louis Cardinals pitcher Danny Cox showed a dramatic statistical difference before and after his 70th pitch. Up to No. 70, batters hit 0.230 against him; after his 70th, they hit 0.370.

Using Stats, Inc. data, NBC announcer Vin Scully told viewers about that falloff just before Cox threw his 71st pitch in a game in that year's National League championship series. Cox's 71st toss was smacked for a single, the 72nd lined for a double and the 73rd was crushed for a home run.

— Stewart Deck

Year 2000 disclosure act facing deadline

CONTINUED FROM PAGE 39

nies to share information on year 2000 fixes mainly by limiting the liability they face if information they give is incorrect.

Protection against liability lawsuits would *not* apply if the information was deliberately false or was provided recklessly.

Also, incorrect statements about year 2000 preparedness in filings required by the Securities and Exchange Commission or banking regulators wouldn't be protected.

Chief among the obstacles to passage is that time is running out for action before the current session of Congress ends on Oct. 9.

Supporters of the act said fallout from special prosecutor Kenneth Starr's report on President Clinton so far hasn't had an impact. "I don't think the focus on the Starr report has been a problem yet, even though the [year 2000] bill is in the jurisdiction of the House Judiciary Committee," which is also reviewing the investigation of Clinton, said John Koskinen, chairman of the President's Council on Year 2000 Conversion. Koskinen supports the revised bill.

Koskinen and U.S. Sen. Robert Bennett (R-Utah) have worried that trial lawyers will oppose any limitations on liability. "The trial lawyers, who don't like the bill, don't have to win a vote, they just have to find a few friends to delay [it]," Koskinen said. "I think the [bill] is a long shot just because of the limited time left, which makes it easy for any senator or congressman to slow the bill enough to, in effect, kill it."

Many business groups support the bill, including the National Association of Manufacturers, a group of 40 business associations. But one large business group, the Washington-based National Retail Federation (NRF), balked. It claimed that the bill would make companies complacent about year 2000 preparations because the chances of a liability lawsuit would be lessened.

"We're troubled by a Good Samaritan approach because we worry companies might let down their guard," said Cathy Hotka, vice president of information technology at the NRF. "Imagine that you are a retailer selling consumer electronic products and you are contacting your suppliers and they have no [liability] incentive to tell you things. We think it is better to leave the liability as it is."

In response to the NRF, Koskinen said, "The situation now is that companies are generally providing little or no information. So it's not as if we're about to replace information with greater validity with information that's more suspect."

Hotka said the government shouldn't be protecting information it receives from industry groups or other sources from public disclosure, as is proposed in the act. Large companies need such information to protect themselves if, for example, one network or data service provider was found to have particular problems, she said.

Koskinen said one goal of the information-sharing aspect of the bill is for industry consortiums to take the data and disseminate it so firms won't fear a government crackdown. □

Can video games help train?

CONTINUED FROM PAGE 39

tor for Prensky. "Sometimes it's hard to get [the students] off the trading floor or away from stressful work," he said. "We give them a window for game completion, and then they can choose when to devote the time to do it."

Kathryn Komsa, a Bankers Trust principal, said she was a skeptic. But after trying Straight Shooter, she said she "changed 180 degrees."

Komsa said she was most impressed with the game's reinforcement of material. "When you get something wrong, it comes up again and again until you get it right. Most traditional training tools don't have this ability," she said.

Komsa eventually helped design a program that administers Straight Shooter to incoming MBA graduates. The first class of 125 students "loved it," she said. "As an introduction to the stuff that Bankers Trust does, it communicated to them that we are an innovative and creative company. I think it wowed them."

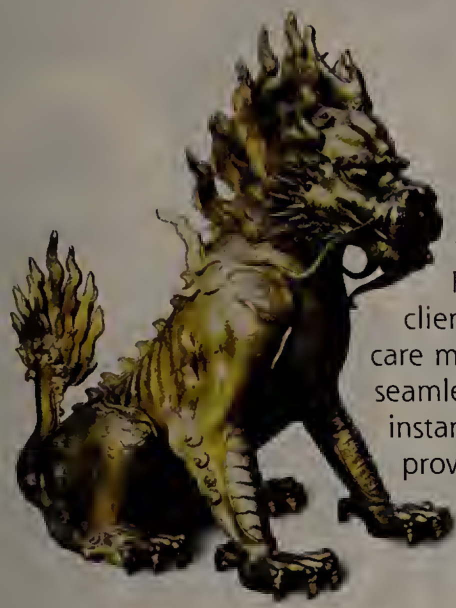
Prensky's group has started to share its innovations with the world. One of its first clients was ABN Amro North America, Inc. Paul Hickey, a senior training consultant at the Chicago-based bank, licensed Battle of the Brains about a year ago. ABN uses the sports-themed game as a recap tool in new-employee orientations. "We went for it because it lets us develop content on our own," Hickey said. "It doesn't take a programmer to figure out how to use it or build it." He said ABN uses a lot of multimedia training tools.

"Games bring the level of engagement that's needed" to train a generation that was brought up on Nintendo, says Marc Prensky of Bankers Trust

"It's one of those things that there's definitely a need for," Hickey said.

"People are so receptive to it. It's actually funny how competitive they get." □

It's déjà vu all over again: The new COBOL.



"Relational DBMS and COBOL" may sound like an oxymoron but the Tatung Company, one of the largest in the Republic of China, is using both in a hospital client/server system that delivers better patient care more efficiently. ACUCOBOL™-GT applications seamlessly send SQL queries to a Sybase DBMS and instantly retrieve patient histories, as well as providing easy access to portions of the database to accountants, purchasing agents and other employees. The prognosis is very healthy.

Ben & Jerry's Homemade, Inc. found that the real scoop on cross-platform compatibility isn't java, it's ACUCOBOL-GT. They moved 460 programs and 1,000 screen components from a Novell Network on PCs to a new computer over a weekend. ACUCOBOL-GT was the clear choice because it runs on over 600 platforms.

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Which came first? Ask CSD (UK) and they'll tell you exactly when the chickens and the eggs (not to mention the kippers, frozen peas and other products in our food chain) got to or will arrive at your favorite supermarket or bistro. When it came time to update their distribution software, they switched to ACUCOBOL-GT because it provided open access to relational DBMSs from Oracle and Informix, and made it easy to create the more than 500 GUI screens their users required. And now everything is sunny-side up.

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Briefs

Streaming Intel

RealNetworks, Inc. in Seattle is licensing technology from Intel Corp. for the next version of its RealSystem G2 software, due next month. That technology, called Intel Streaming Web Video, lets sites encode live video for World Wide Web broadcast at four different speeds on single 400-MHz Pentium II systems. With current technology, four systems are needed.

Netscape for SAP

Netscape Communications Corp. has announced its Application Server for R/3, which will enable companies to develop, deploy and manage Internet-based applications that integrate with SAP AG business software.

Application Server for R/3 is expected to be generally available by year's end for $70,000 per CPU and an additional $4,995 per developer seat.

Netscape also announced that its ECXpert commerce exchange software with SAP certification will be available by year's end. Pricing will be $75,000 for a two-CPU license.

Top 10 vehicle choices among users of Microsoft's CarPoint car-buying site last month

1. Honda Accord
2. Ford Explorer
3. Honda Civic
4. Toyota Camry
5. Dodge Durango (above)
6. Toyota Sienna
7. Ford Expedition
8. Dodge Caravan
9. Ford F-150
10. Honda CR-V

Base: 1.5 million unique visitors to site in August 1998

Source: Microsoft Corp., Redmond, Wash.

Lenders capitalize on mortgage boom online

By Robert L. Scheier

WITH INTEREST RATES near 30-year lows, consumers are rushing to buy homes and, increasingly, shopping for mortgages on the World Wide Web.

Online mortgage services promise to cut the time, cost and hassle of getting a mortgage. But, as with every facet of Web commerce, the competition is fierce, and competitors are still trying to figure out the best way to turn site visits into profits.

For example, E-Loan, Inc., a June 1997 start-up that two weeks ago announced it had received $25.4 million in its second round of venture capital, isn't profitable yet. But revenue this month is expected to rise from $825,000 to more than $1 million, putting the company on a pace to reach $10 million in annual sales, said co-founder and CEO Chris Larsen.

CEO Chris Larsen says E-Loan's process cuts about 70% from the cost of loan origination.

Palo Alto, Calif.-based E-Loan faces stiff competition from a wide variety of online mortgage services, which include QuickenMortgage from Intuit, Inc. in Mountain View, Calif., and one from Homeshark, Inc. in San Francisco.

Only a tiny fraction of mortgages are now processed online, said Theodore Iacobuzio, an analyst at The Tower Group in Newton, Mass. "But the mortgage market is so huge, even a small fraction of the mortgage [business] would be a very large market for these guys," he said.

Like other online mortgage sites, E-Loan aims to reduce the paperwork of mortgage applications and cut out middlemen, such as mortgage brokers and bank loan officers. Larsen said the online process cuts about 70% from the normal cost of loan origination.

But unlike some other mortgage sites, which collect a fee for referring home buyers to

Online mortgages, page 45

'net buying standard took a while

By Carol Sliwa
LOS ANGELES

THE OPEN BUYING on the Internet (OBI) standard — designed to help companies procure high-volume, low-cost goods and services online — got a shot in the arm last week at the Internet Commerce Expo here when major backers made a case that the standard finally is ready for prime time.

But the small number of pioneering adopters has had to be patient. They have coped with an oft-changing specification, waited for software vendors to make their products OBI-compliant and wrestled with OBI's digital certificate recommendation, which can be costly and difficult to support.

"Every time we would think we were finished, the spec would change," said Terry Pavone, manager of emerging technologies at Boise Cascade Office Products Corp. in Itasca, Ill.

The OBI Consortium's release of a more stable 1.1 standard in June, 13 months after the emergence of the 1.0 specification, and the arrival of a tool

Internet buying standard, page 45

Document management ripens

▸ *It has become indispensable at big companies*

By Roberta Fusaro
BOSTON

DOCUMENT MANAGEMENT used to mean storing, archiving and tracking documents. But panelists and users at the Documation '98 conference here said it is undergoing a renaissance as a critical element of intranets and knowledge management.

As big companies use intranets and the World Wide Web to communicate with customers and staff, document management has become indispensable for organizing, personalizing and reusing information scattered widely across a company, panelists said at the conference two weeks ago.

Attendee Elizabeth Walker, a documentation specialist at AG Communication Systems, a telecommunications firm in Phoenix, said her company has been using Interleaf, Inc.'s RDM document management system for several years.

Document management tips:

- Let users choose the editing tools that meet their needs
- Simplify the lives of IS and administrators
- Remain flexible

NEW NEEDS

But Walker said she was at the show looking for knowledge management and content management systems that would let different departments share applications and information. "We're using some of that already, to make information accessible to customers on the Web," she said.

Content management appli-

Document management, page 44

Microsoft, Netscape go at it again

By Carol Sliwa

TWO WEEKS AGO, Netscape Communications Corp. released a so-called Windows-friendly beta version of its Communicator 4.5 groupware/browser suite — raising the dander of rival Microsoft Corp.

Netscape's Communicator fiddles with Internet Explorer's default settings, raising Microsoft's ire.

The software presents the user with a series of questions that, if answered in the affirmative, will set Netscape's software as the default Web browser, E-mail client and search mechanism. It also makes Netscape's Netcenter, a World Wide Web portal site, the first page users see when they launch their browsers.

What irks Microsoft is that the Netscape site also becomes the default home page for Microsoft's Internet Explorer browser, which comes bundled with Windows 95 and 98. "They go into the registry of [Internet Explorer] and modify your default home page — completely a strange situation

Microsoft, page 44

Document management ripens

CONTINUED FROM PAGE 43

cations let a company track the metadata about its intellectual property — such as internal experts, resources, reports and sales campaigns — in great detail. They can then maintain and reuse that information.

According to Norwell, Mass.-based CAP Ventures, Inc., the sponsor of the show, the content management market will grow from about $700 million last year to a projected $2 billion by 2000 because of the growing use of intranets.

Bruce G. Barrett, principal technical writer at GTE Internetworking in Cambridge, Mass., said he was at the show seeking information about Extensible Markup Language tools, which let developers tag information for easy search and retrieval. Barrett said GTE's Cambridge office uses a homegrown Web-based document management system called KnowledgeBank to share information among employees.

GTE's system lets users track and change information and accepts 25 different file types. Having such a system can reduce redundancies, "so you're not seeing the same project covered by three or four different people," he said. ☐

Microsoft, Netscape go at it again

CONTINUED FROM PAGE 43

for the user," said Mike Nichols, product manager at Microsoft in Redmond, Wash.

"It's obvious their focus is clearly on driving users to their own portal, as opposed to really helping users find and use the breadth of Web sites and Web resources throughout the entire Internet," Nichols said.

Netscape argued that it is bringing choice to Windows users who automatically receive Internet Explorer with their Windows operating systems. Now, they will have an easy way to select Netscape, with a simple click of the mouse, said a spokeswoman for Mountain View, Calif.-based Netscape. ☐

NEW PRODUCT

RAGULA SYSTEMS, INC. has announced FatPipe Internet 3.0, software that combines multiple analog or digital lines into one high-speed LAN Internet connection.

According to the Salt Lake City company, the software downloads Internet content across multiple modems in a parallel data stream. By connecting four analog lines, users can access the Internet at Integrated Services Digital Network speeds.

FatPipe Internet 3.0 allows up to 100 users to share an Internet connection.

In addition, the new version has improved access management for increased security.

FatPipe Internet 3.0 costs $299.

Ragula Systems
(801) 281-3434
www.fatpipeinc.com

"Our readers don't think about business in terms of technology. In fact, a lot of the people I talk to aren't even in the IT department. They're marketing managers trying to figure out how to use e-commerce to sell widgets. Or business owners working to keep their supply chain intact. My job is to help people connect the dots...to see how others are doing things, where the pitfalls are, and how they can avoid them. That's what business leaders need to know. I try to give them some new ideas, to spark their imagination. I want our readers to walk away charmed and connected. But most of all, I want them to come back."

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Julia King, National Correspondent

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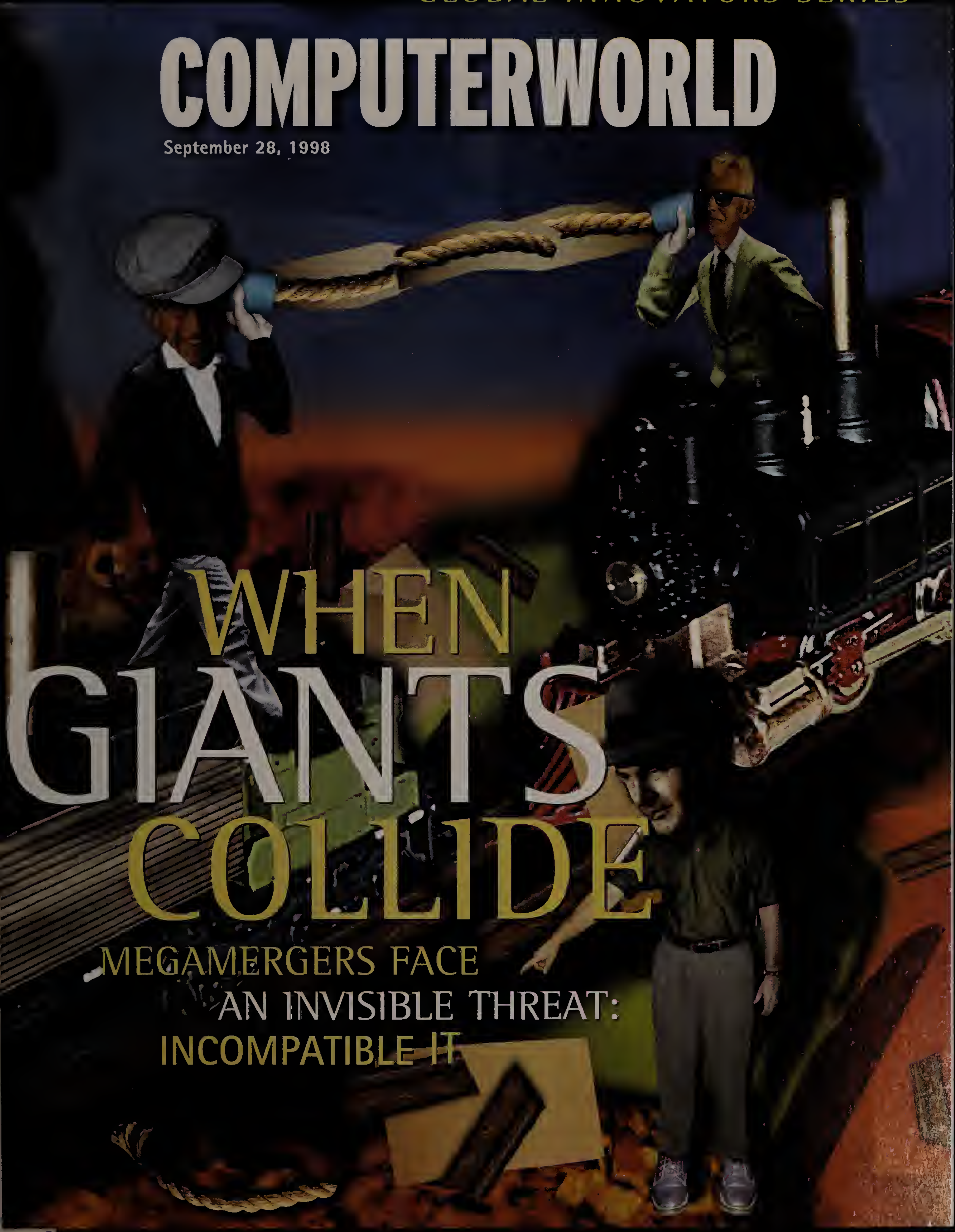

WHEN GIANTS COLLIDE

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EDITOR'S NOTE

Megamerger magnetism

Like opposite poles of a magnet, multinationals far and wide are finding the urge to merge almost unavoidable.

In recent months: Daimler-Benz and Chrysler joined forces in a high-octane deal initially valued at $38 billion; Bertelsmann Aktiengesellschaft anted up $1.4 billion for Random House; and Seagram Co. snared PolyGram Records for nearly $11 billion. They are symptoms of an evolving global economy in which multinationals search worldwide for greater economies of scale and market share, meaningful product and customer extensions and, of course, elevating shareholder value.

How can merging titans obtain any of those advantages? As our cover story points out, anticipating regulatory and legal challenges, paying careful attention to disparities in IT infrastructure, culture and language, and understanding the costs — both in human capital and dollars and cents — of creating interoperable systems can make or break even the most synergistic of mergers.

And clearly, the earlier IT is involved, the better. That's because many of the envisioned business benefits pivot around vital supply-chain, sales and marketing initiatives — many of which are powered by highly proprietary or customized systems. And if these systems can't be rejiggered to work in lockstep, or the costs are prohibitive, it's in the suitors' best interest to know before it's too late.

And as with animal magnetism, it's better to understand your differences before nuptials are exchanged than to have the dirt come out in divorce proceedings!

Alan Alper

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Mixing it up with SAP R/3

HOECHST AG REORGS, SPINS OFF IT WHILE MAINTAINING ITS FISCAL COMPOSURE

BY MARY LISBETH D'AMICO

"Organization follows business, and IT follows organization." That has been the guiding philosophy behind a major restructuring at Hoechst AG, the German chemical giant that saw 1997 revenue of about 52 billion marks ($25 billion U.S.). The restructuring — which is expected to be completed by 2000 — has meant a major overhaul of the Frankfurt-based company's systems architecture. Hoechst also can now boast one of the largest simultaneous SAP R/3 implementations, with as many as 140 deployments at various subsidiaries worldwide.

Back in 1994, many of Hoechst's European-based industrial businesses were showing lackluster results. The company also was at risk of losing ground in its pharmaceutical and agriculture businesses. To boost competitiveness and more closely align Hoechst's businesses with its customers, company chairman Jürgen Dormann decided to move away from a hierarchical, centralized structure and instead create a holding company for eight independent operating companies, each with its own worldwide subsidiaries. Hoechst also began to emphasize life sciences, including biotechnology and genetic engineering.

The decentralized structure also required a new way of planning and organizing the company's IT systems worldwide. Before, Hoechst subsidiaries in 140 countries made up a classical matrix organization, each with its own computer systems and experts.

Under the new regime, IT decisions were delegated to the operating companies. And two years into the restructuring, in 1996, Hoechst spun off its IT department into a separate company called HiServ Hightech International Services GmbH, says Ulrich Bos, chief executive at HiServ. Today, each Hoechst unit can freely decide whether to use HiServ's support or go elsewhere for IT consultancy.

Decision-making freedom is a key part of the company's new philosophy, but headquarters has made some strong IT recommendations. Hoechst struck strategic partnerships with IBM, Microsoft Corp., SAP AG and AT&T Corp. and recommended that its companies standardize on R/3, SAP's enterprise resource planning software, and Windows NT. The SAP choice was also made with an eye toward euro and year 2000 compatibility, Bos says. The ambitious goal was to switch all units to standard software by 2001.

Nearly all of Hoechst's units took up the recommendation to standardize on SAP's R/3, says Helmut Hoffmann, SAP global account manager at Hoechst. Some 230 separate R/3 implementations have been undertaken in 40 countries, which so far has created 18,000 to 20,000 productive users. Some of Hoechst's subsidiaries had already worked with the German software vendor since its very earliest days — about 25 subsidiaries already had R/2 systems for mainframes, Hoffmann says.

HiServ was asked to provide services for about 200 such implementations, Bos says. Its main challenge was to make sure that "IT did not disturb the businesses processes of each unit during the restructuring," he says.

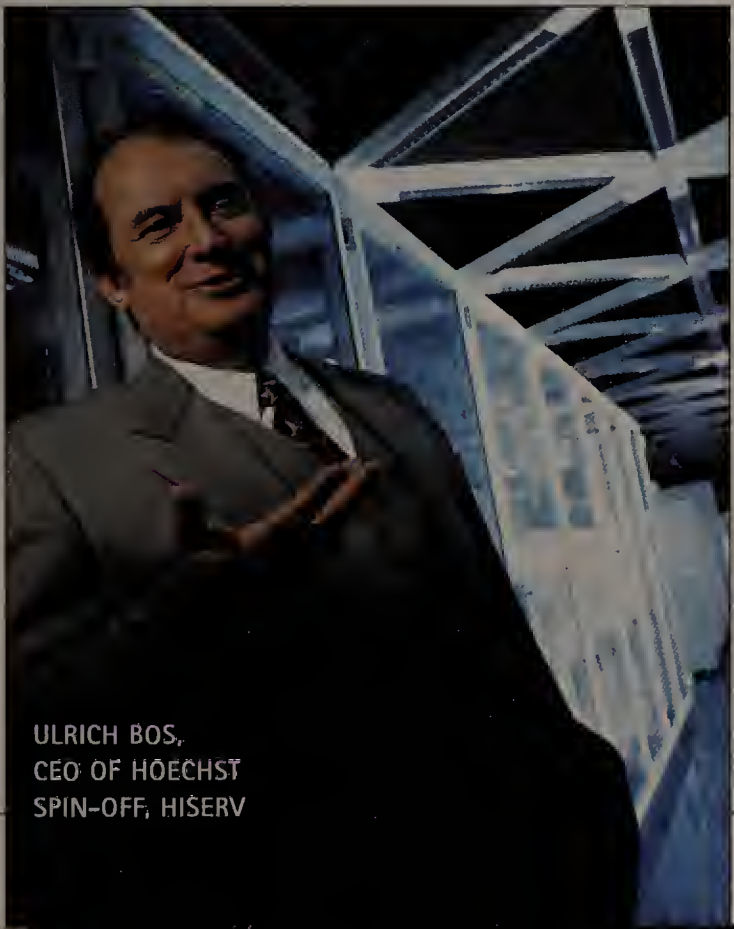
To help loosely couple Hoechst companies and subsidiaries, HiServ developed "application to application" software, called A2A, which lets companies link their R/3 systems. Other A2A tools offer interfaces to software programs the subsidiaries weren't prepared to replace with R/3. The integration software also decides when the business application systems need to inform another system of an event, such as a user order.

The idea behind the tools is to "allow for growth, but minimize risk," Bos says. For example, Vianova Resins GmbH, a Hoechst subsidiary that produces paint resins, used A2A initially to build interfaces to its existing systems for transport and storage, according to Gerald Skrobanek, IT director. But by year's end, Vianova plans to phase out these systems and use only what is provided by SAP, he says.

The SAP implementations overseen by HiServ have grown ever more rapid, Bos says, as HiServ learns how to minimize the time and money involved. In fact, the implementations will be finished ahead of schedule, Bos said, by the middle of next year. By then, Hoechst will have seats for some 60,000 SAP users, or roughly half its employees. Hoechst and SAP also worked together to add features to R/3 that are specific to the chemicals/pharmaceuticals industry, such as special features for production; an environment, health and safety module; and additional transport functionality.

The results of the restructuring aren't clear yet, as competition in some industries remains fierce, and the project isn't complete. But Hoechst's chairman points proudly to the fact that the company has restructured while still "increasing operating earnings, raising the dividend, requiring no capital increases, growing earnings per share and achieving a substantial rise in shareholder value." In 1997, the Hoechst Group posted an operating profit of 3.65 billion marks ($2.65 billion U.S.).

D'AMICO IS AN IDG NEWS CORRESPONDENT IN MUNICH.


FRANK REINHOLD

ULRICH BOS, CEO OF HOECHST SPIN-OFF, HISERV

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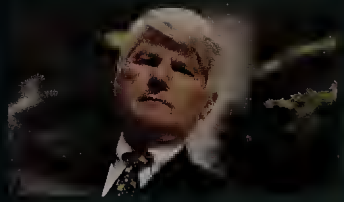

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The China connection

FLEXIBILITY, INNOVATION ARE KEYS TO CLEARING CHINA'S NETWORKING HURDLES

BY HOLLY HUBBARD PRESTON

Goods and services may be traveling more freely between the U.S. and China, but when it comes to network communication, don't expect to find any well-worn Silk Road.

Veteran information technology professionals in China will readily admit it: Building a network infrastructure in and out of this still predominantly Third World market is an expedition into the unknown. Modes of transportation are limited, and the price of passage is often high.

While China is rapidly expanding its telecommunications infrastructure, land lines can still be scarce. Where they do exist, quality is often poor and overburdened by China's quickly swelling metropolitan population.

Despite the limits on the infrastructure, online computer use is growing. The Chinese government estimates there are roughly a million registered users accessing the Internet. Still, access costs remain two to three times higher than in the U.S. And signing up for a local service can be cumbersome, if not intimidating, because users have to preregister with the Chinese government through pre-approved Internet service providers.

U.S.-based companies that want to communicate with their China operations "don't have a whole lot of options" right now, says Eric Scace, vice president of international business development at UUnet Technologies, Inc., a leading Internet backbone provider based in Fairfax, Va.

Essentially, they have two choices: They can dial in to an Internet hub outside of China via a government-approved local Internet service provider (such as ChinaNet or Ji Tong) that will eventually carry them to, for instance, UUnet's Internet gateway. Or they can lease an international point-to-point line, such as an expensive T1 connection (known as an E1 in China). The latter costs about $8,000 per month for a dedicated 128K bit/sec. line and often requires pre-approval from the Chinese Ministry of Post and Telecommunications, which runs the country's telephone monopoly, China Telecom.

Scace says the more affordable Internet route offers very limited network security, if any at all. All Internet connections must first pass through a government-controlled filter. Combine that with the fact that high-level 128-bit U.S. encryption technology can't be exported without a waiver, "and there's not a lot you can do about security," Scace says.

china
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access
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LARRY GOODE

Sound discouraging? Not when you consider that options were even more limited only a few years ago. When Gary Curtis, an independent computer engineering consultant arrived in China three years ago, there was no commercial Internet access. Worse, it was illegal to connect a modem to the public phone system.

Since then, China's Ministry of Post and Telecommunications has established ChinaNet, a government-approved Internet service provider that offers nationwide backbone capacity and access to international telecommunications gateways. Access speeds are still pretty abysmal. Transfer rates are around 150 bit/sec., even using a state-of-the-art 56K bit/sec. modem. But "poor access is still better than no access at all," Curtis points out.

FORGING THROUGH

Online access to and from China is becoming so important, many companies are willing to tolerate the limits the market presents.

"The power of Federal Express' transportation network and information network depends on our ability to be ubiquitous," says Keith McGarr, vice president of network computing at Federal Express Corp. in Memphis, Tenn. China is no exception, he says.

FedEx is using a range of networking technologies to link its offices in mainland China to its corporate backbone. Its main regional gateway is a high-speed fiber-optic Asynchronous Transfer Mode backbone. The network receives data from mainland China sent via dedicated connections, dial-up connections, satellites tied to VSAT systems and other wireless network options. With it, FedEx can communicate with its local sales offices and coordinate and monitor freight shipments in even the most remote locations, down to the minute.

Baskin Robbins U.S.A. Co., through its London-based parent Allied Domecq, is gearing up to take its corporatewide intranet into China, where it already has more than a dozen outlets. It is getting help from outside integrator IFX International, Inc. in San Diego.

For Baskin Robbins, a flexible design plan has been key in establishing its China gateway, says Dan Martin, president of IFX International.

For instance, it avoids using custom software and remote servers. Instead, the Chinese franchisees will use local versions of a popular browser to carry them to a designated uniform resource locator on a U.S.-based server controlled by Allied Domecq. The franchisees will secure their own in-country 'net access, and a series of password-driven front ends will control access levels.

The system, which is being deployed in China and other world markets, initially will let franchisees send E-mail, share information in a one-way mode, download operation manuals and view regional and worldwide sales and marketing reports. But the real benefits of the system will come in the second phase of deployment slated for sometime next year. Then Baskin Robbins franchisees, including those in China, will have their monthly sales data polled online, and the results will be posted for all to see and evaluate.

Network security for data passing out of China is largely handled by IFX and its client's control, but the front-end system in the U.S. will protect the integrity of the overall network, Martin says.

Ketchum Public Relations Worldwide, a New York-based public relations firm represented in Shanghai, Beijing and Hong Kong, is addressing the security issue by ensuring that all IP addresses from around the globe are prescreened and monitored regularly. Only approved Ketchum employees worldwide can get inside the corporate firewall to review data on the corporate intranet.

The current setup, while far from being a true collaborative environment, does allow for meaningful communication beyond E-mail, says Dan Madia, senior vice president of technology and a senior partner at Ketchum. The firm has many large multinational clients, several with offices in China. To support clients, team members are assigned in China and elsewhere. It's up to them to apprise one another of their actions, such as the posting of press releases.

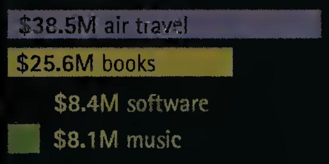
Ketchum, too, is planning a second phase of deployment which Madia says will introduce custom collaborative software that will link account representatives all over the globe.

PRESTON IS A FREELANCE WRITER IN PALO ALTO, CALIF. SHE RECENTLY SPENT A MONTH IN CHINA.

WIRED WORLD

WHERE THE SHOPPERS ARE

IF YOU'RE LOOKING for the most avid online buyers in Europe look to Germany, says a recent report from Jupiter Communications, in the U.S. At $1.85 billion, that country's Web-based sales are well ahead of France and the U.K. — the two other European leaders in Web commerce. Air travel in Germany is expected to garner the greatest overall revenues in 1998.



NO PROBLEM

TALK ABOUT A LACK of communication. According to a recent study by Xephon, a U.K. market researcher, a quarter of European respondents see the conversion to the euro as a much bigger problem than the year 2000. But in the U.S., most IS managers consider the euro to be a relatively trivial consideration.

BUT WAIT — THERE'S MORE BAD NEWS. According to the report, which surveyed 184 organizations around the world, 30% of IS managers in large organizations view embedded processors (in control systems, manufacturing plants, and so on) as a much greater year 2000 compliance problem than centralized systems. But one-fifth of those surveyed said they didn't know who had responsibility for embedded systems within their company. A massive 57% said they hadn't yet checked their embedded systems for compliance but planned to do so in the near future.

FOR MORE INFORMATION, CONTACT XEPHON AT *WWW.XEPHON.COM*

WORLDLY WISE

MOST COMPANIES understand that the World Wide Web will attract international visitors looking for new products or better prices. But according to Forrester Research, Inc. in the U.S., few U.S. companies address the needs of their international audience. European corporations, on the other hand, have taken the lead in World Wide Web localization by adapting products, brands and prices to meet local market variations.

IN EUROPE, 80% of corporate sites are multilingual, with English as the preferred second language. While two-thirds of these firms maintain one primary international site, localized content featuring product news and promotions is usually just one click away. Although localization is expensive and can add between 10% and 60% to a site's development costs, according to Forrester, localized sites generate more traffic, longer visits and greater customer satisfaction.

FOR MORE INFORMATION, CONTACT FORRESTER AT *WWW.FORRESTER.COM.*

WHEN GIANTS COLLIDE

MEGAMERGERS FACE AN INVISIBLE THREAT: INCOMPATIBLE IT

BY ALICE LAPLANTE

Bob Barnes is one of the luckier CIOs to emerge from today's global merger melee.

His company, Westcon, Inc., a wholesale distributor of networking products, was just bought by Data Tec Ltd., a South African technology integration firm. Yet Barnes not only remains gainfully employed, he's the top information technology guy at a global concern with a market capitalization of more than $1 billion.

The major IT initiatives he's been planning — upgrading Westcon's homegrown distributed suite of applications to support electronic commerce worldwide — aren't only on course, they've been expanded beyond his wildest dreams. Best of all, "we now have the financial backing to do this right," he says.

In fact, it was probably Westcon's global IT infrastructure that made it attractive to all the suitors that lined up once it put itself on the auction block, says Tom Dolan, executive vice president of sales and marketing at Westcon, which racked up $400 million in sales in fiscal 1997.

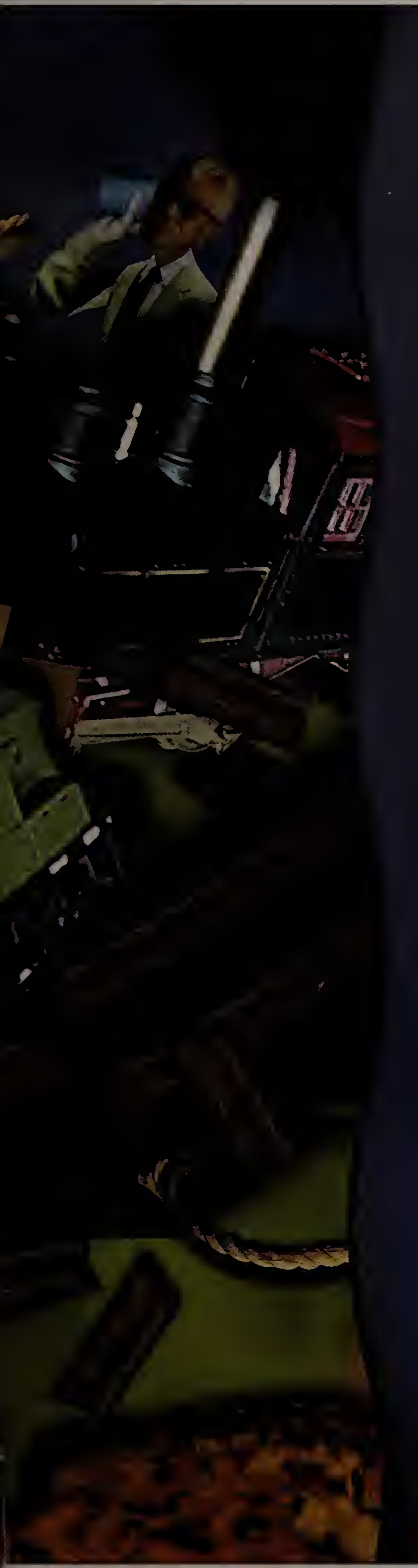
All Westcon sites around the world are connected by a private frame-relay network that spans the globe. At each site — including Montreal, Toronto, Sydney and Hong Kong — local Windows NT Server and intranet servers run homegrown enterprise resource planning (ERP) applications. Those servers run on LANs that also run Novell, Inc.'s Netware. Local ERP functionality is transmitted through the global intranet and consolidated on Windows NT servers at the New York headquarters.

In an unusual twist, the acquired company's IT infrastructure will dominate the newly formed global networking giant. Data Tec will relaunch its U.K. operations with the recognized Westcon brand name and will build on Westcon's global IT presence.

In short, Westcon's existing IT architecture "will be expanded to incorporate all existing Data Tec sites," Barnes says.

The goal is to move to a new ERP system that will run on the communications structure already in place. The merged entity plans to buy, not build, its next generation of ERP applications and has narrowed its choice to a handful of top contenders.

"All our people are staying in place. In



essence, we're simply expanding our method of doing business worldwide," says Robert Gordon, manager of global information systems at Westcon. He manages the firm's private frame-relay network.

That doesn't mean individual Data Tec offices overseas won't be allowed to keep applications they've developed or grown accustomed to, Barnes says. There will be a concerted attempt to standardize the global network infrastructure, but "if a local application or implementation of technology has a good business case, we'll continue to use it — provided it has no business or technical interoperability or maintenance impact on our global environment."

Many of the details haven't been ironed out (the deal was just clinched early this summer), but "everything is moving ahead smoothly," Barnes says.

That's why he's one of the lucky ones.

Because in most cross-border mergers, the IT fallout is "grossly underestimated," says Dr. William Zeitz, a consultant at Beyond the Millennium Consulting in Lambertville, N.J.

When you consider the merger mania that struck in the late 1990s, that's a lot of underestimating. The latter part of the decade has seen a 40% jump in overall mergers and acquisitions between 1996 and 1997, according to Computer Sciences Corp. (CSC), which tracks mergers and acquisitions activity.

"We tracked about $1 trillion worth of deals in North America alone last year," says Tom Madison, corporate vice president at CSC in Dallas.

Many of the most highly publicized deals have been multinational in scope. The German media conglomerate Bertelsmann Aktiengesellschaft paid $1.4 billion to swallow Random House in the U.S. Daimler-Benz in Germany bought U.S.-based Chrysler Corp. for $39 billion. And Montreal-based Seagram Co. purchased PolyGram Records in the Netherlands for nearly $11 billion.

For mergers or acquisitions completed using the "portfolio" approach — the businesses involved continue operating autonomously despite being under the same corporate umbrella — IT concerns are minimized. But if the businesses involved "intend to truly come together to reap the efficiency benefits of combined processes, then one or both organizations must be prepared for massive changes," says Mike Grant, vice president of the strategic IT practice at A.T. Kearney in Dallas. "And if you try to do this without first understanding the IT implications, then you are heading for disaster."

There are the basic issues to be considered: operating systems that need to be consolidated or at least talk to each other; data to consolidate; and users to be trained on new or evolving systems.

Then there are larger issues that could affect the health of the merger: the type and number of commitments to specific vendors; current projects under development; current outsourcing or third-party staffing contracts; electronic links that connect existing customers or suppliers; and most important, "what the existing IT road map is and whether it serves the strategic goals of the new organization," says Andreas Meyer Knownow, vice president of Siemens Nixdorf Information Systems, Inc.'s Application Software division in Burlington, Mass. Siemens and Nixdorf, both German-based firms, merged in the early 1990s.

With mergers or acquisitions that cross international boundaries, the challenges multiply. You've got data migration issues that include translation — not only of different languages, but different alphabets. There are constantly changing legal and regulatory issues. Currency conversions. And technology deemed standard in one country might not be readily available or economically feasible in another.

Then, of course, there are cultural differences, which can be showstoppers even when a corporate marriage is made within country boundaries. Add language differences and cultural assumptions that go back to centuries of local tradition, and you have a taste of some of the challenges that lie ahead.

"In international mergers or acquisitions, there are major cultural and communications issues that make something that is already difficult much harder to accomplish," Madison says.

Which makes underestimating a dan-

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LARRY GOODE

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JUST HOW THICK IS A VIRTUAL WALL?

You're getting ready to close your biggest deal to date via the Internet and the question of security crosses your mind (relax, it can be safe).

As you hit "send," consider the fact that there are entire corporations who are struggling with the same question. They'd like to utilize the Web to distribute and manage sensitive data, but they also want to know – how safe is it?

IBM, working with business partner Lante, a specialist in Lotus® application development, helped a company called IntraLinks create a secure environment for businesses to work on the Web.

Supported by IBM Global Services, IntraLinks provides a private extranet based on Lotus Domino,™ which allows constituencies to safely work, collaborate, even negotiate online. Proposals, documents, classified plans and contracts (some worth billions) can travel safely.

In addition, fanatical electronic tracking helps assure that each detail, no matter how small, doesn't fall through the cracks (so not only are the walls as thick as they need to be, but the virtual floor is well-built, too).

In less than a year, over $60 billion has been managed using IntraLinks' e-business technology. Costs are down 10 to 30% over standard management practices and document delivery systems. This last point has not gone unnoticed in the world of finance, where an increase in volume of as little as 1% can equal a $20 million boost in revenue.

To learn more, visit our Web site (where the door is unlocked, and everybody's welcome) at www.ibm.com/e-business, or call us at 1 800 IBM 7080, ext. NC41.

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WESTCON AND DATA TEC

N.Y.-BASED FIRM MERGES WITH SOUTH AFRICAN FIRM

STRATEGY: THE GLOBAL NETWORK INFRASTRUCTURE WILL BE STANDARDIZED, BUT LOCAL APPLICATIONS WITH A GOOD BUSINESS CASE WILL BE LEFT ALONE. WESTCON'S IT INFRASTRUCTURE WILL DOMINATE THE NEWLY FORMED GLOBAL NETWORKING GIANT.

COMMENT: AS A RESULT OF THE MERGER, "WE NOW HAVE THE FINANCIAL BACKING TO DO [THINGS] RIGHT." – BOB BARNES

Continued from page 9

gerous thing, indeed.

Since IT is critical to business operational efficiency, it would first make sense to know if a merged IT entity is even possible. "To the extent that many companies cite cost savings and operational efficiencies as the primary reason for a merger or acquisition, senior-level IT people need to verify that those opportunities are indeed viable," agrees Alec Ellison, managing director of Broadview Associates, a technology investment bank headquartered in New York.

EARLY INTERVENTION

And chief information officers are unanimous: the earlier IT is involved, the better.

"If any of the verbs 'combine,' 'integrate,' 'move' or 'report' are spoken, I need to be sitting in the room," says Bob Rubin, vice president of information services at Elf Atochem North America, Inc. in Philadelphia.

Rubin has endured a number of multinational mergers in his long IT career, most recently when Elf Atochem purchased Rohm Haas' Plexiglas business, based in Germany. "Even domestic mergers are difficult. But with multinationals you are dealing with distance and language and culture," he says.

For example, Rubin explains, Elf and Rohm Haas had originally structured the deal as a joint venture. Called AtoHaas, Atochem ran the European systems, and Rohm Haas ran the U.S. systems. "I was constantly on the phone with my counterpart in Europe trying to figure out how to make it all work," recalls Rubin. An eventual compromise: to keep running two separate systems until 2000, when a new strategy would be devised.

Indeed, one of the keys to success is early involvement of senior-level IT folk.

"IT tends to be the last thing people think of when [mergers and acquisitions] talks begin. Yet there are tremendous technology implications to moving into new markets, acquiring new products or getting access to new customers," Grant says.

Many CIOs have horror stories about being involved in mergers or acquisitions where the IT aspect was little more than an afterthought.

Zeitz was group CIO when American Cynamid bought Houston-based Shell Oil Co.'s global agricultural business. "We were called in after the deal was basically done," he recalls. "They told us they expected the systems to be merged as soon as possible, but they hadn't begun to think of what that would involve."

For example, one critical Shell system had for a long time been outsourced to a third-party firm.

"Someone else had designed it, written it and was providing all service and sup-

BOB BARNES, CIO AT WESTCON, INC.

BRIAN SMALE

port. Yet no one had taken into account that these very important systems professionals didn't 'belong' to Shell. No one was sure who owned what or who would be responsible for supporting this important function after the deal went through," Zeitz says.

Issues like this need to be fully investigated ahead of time, "otherwise you don't know if the IT impact is going to be $20 million or $200 million," Zeitz points out. In this particular case, the outsourcer's contract was extended until the new IT division could evaluate the best way to proceed, he says.

If there's a silver lining to the year 2000 crisis facing every company in the world, it's that "you can't even think about a merger or acquisition these days without talking about systems," Zeitz says.

"Because of year 2000, IT considerations tend to come up much earlier than they used to," Ellison says. And with mergers and acquisitions so common, CEOs are becoming more sophisticated about involving technologists at earlier stages of talks, he says.

Rubin recalls being called into a meeting with his CEO and one other executive vice president when Atochem was first considering buying out Rolm Haas' share of the two company's previously joint Plexiglas business, AtoHaas.

"They said, 'Besides us, you are the only person who knows about this,' " he says. "They told me that IT integration issues would affect the negotiating posture they took." Specifically, since Atochem was purchasing only the product line and related sales and manufacturing operations but not administrative functions, "we would need to pay Rohm Haas to run the on-going systems until we were prepared to take them over. So the IT conversion very much affected the economic sense of the deal," Rubin says.

THE GLOBAL CUSTOMER

Another firm that seriously considered the IT implications is Siemens Nixdorf. In fact, a big challenge for the merged entity has been thinking about the combined IT infrastructure from the point of view of the customer, says Knownow, who was directly involved with the assessment phase of the merger.

"You need to think through all the issues: Is the product being ordered from America? Delivered from Europe? Paid for in Europe but delivered to Asia? All these business issues are really IT issues," he says.

In order to get the entire company in sync, Siemens Nixdorf made a huge investment in SAP R/3, which was chosen for its global support and multilingual capabilities, says Knownow, who manages a team of several hundred IT professionals implementing SAP throughout the world. Previously, the two companies each had different legacy systems that are still being phased out.

Even now, the process of bringing together two such immense IT organizations is ongoing, Knownow says. "At the same time that you are trying to make these big changes in the technological infrastructure, the market is changing, your customers are changing. You have to stay on top of all of that," he says.

ANDREAS MEYER KNOWNOW, VICE PRESIDENT OF SIEMENS NIXDORF INFORMATION SYSTEMS, INC.'S APPLICATION SOFTWARE DIVISION

MARC ALCAREZ

As with any IT initiative, communicating clearly with users is a critical issue. Only in an international merger or acquisition, it's complicated by linguistic and cultural differences, says Sean Magee, director of international information systems at Lanier Worldwide, Inc. in Atlanta.

Magee is stationed in Brussels for the next 12 months to oversee the IT integration of Lanier's recent acquisition of Agfa-Gavaert Group's copier business, which is based in Belgium.

"With some cultures, people prefer to be very direct. They tend to have a low tolerance for ambiguity and a high toler-

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SIEMENS AND NIXDORF

TWO GERMAN FIRMS, MERGED IN THE EARLY 1990s

STRATEGY: SAP R/3 IS BEING IMPLEMENTED THROUGHOUT THE MERGED COMPANIES TO SYNCHRONIZE BUSINESS PROCESSES. PREVIOUSLY, THE TWO COMPANIES EACH HAD DIFFERENT LEGACY SYSTEMS THAT ARE STILL BEING PHASED OUT.

COMMENT: "AT THE SAME TIME THAT YOU ARE TRYING TO MAKE THESE BIG CHANGES IN THE TECHNOLOGICAL INFRASTRUCTURE, THE MARKET IS CHANGING, YOUR CUSTOMERS ARE CHANGING. YOU HAVE TO STAY ON TOP OF ALL OF THAT."
— ANDREAS MEYER KNOWNOW

> "IT TENDS TO BE THE LAST THING PEOPLE THINK OF WHEN [MERGER] TALKS BEGIN. YET THERE ARE TREMENDOUS TECHNOLOGY IMPLICATIONS TO MOVING INTO NEW MARKETS, ACQUIRING NEW PRODUCTS OR GETTING ACCESS TO NEW CUSTOMERS."
>
> – MIKE GRANT, VICE PRESIDENT OF THE STRATEGIC INFORMATION TECHNOLOGY PRACTICE, A. T. KEARNEY IN DALLAS.

Continued from page 12

ance for conflict," Magee says.

On the other hand, other cultures tend to have "very low tolerance" for outright conflict and a high respect for honor and "saving face," he says. This plays out in the IT realm in many ways, Magee says. "I was recently told by an Italian manager, 'I'd like a little time to consider this proposal,' and what he was saying was, 'absolutely not,' " Magee says. "You learn that in some cultures, saying that a proposal sounds 'interesting' is a way of saying, 'no way.' "

Magee calls Lanier's acquisition of Agfa "a terrific marriage" because of the synergies of the two formerly separate companies' copier manufacturing, sales and leasing operations. But that doesn't mean the IT aspects aren't complicated. For starters, although Lanier has traditionally had a strong centralized philosophy for all enterprisewide applications, it is modifying that stance as it consolidates former Agfa sites into its operations.

"The Agfa people in Switzerland and Germany were very clear that having to use a single supplier globally for PC acquisitions would not work for them," Magee says. He eventually decided they were right; it was too difficult to specify exact vendors, let alone model numbers, across all countries the new Lanier/Agfa business would be operating in. Not only did availability vary, but so did price and the quality of support provided.

So although desktop technical specifications were standardized — with a certain PC with certain size drive, for example — each country is free to choose the vendor they deem the best and most economical source of the product.

Indeed, for many multinationals, local IT relationships could be very difficult to disentangle. "Local information technology providers have been very good at providing specific solutions to specific offices in specific countries," Grant points out. "It can be difficult to reconcile these local relationships with an IT strategy that transcends borders and language."

Some of that is practical. Laws and regulations can vary from region to region, much less from country to country. And differences in tax, import, export and other laws can dramatically affect operations.

In the U.S., for example, Lanier is moving ahead with an enterprisewide PeopleSoft system installation but is holding back in Europe until the French government finishes revising its tax code - which won't happen until June 1, 1999. "We'll need to be certain that the vendor we've selected will be able to support that," he says.

Many multinational CIOs point out that perhaps the biggest overlooked issue involves the user communities affected by the merger or acquisition. Not only are there enormous training and support issues as the underlying technology infrastructure is modified or replaced, but these technological changes are often just surface reflections of the massive process changes that are simultaneously occurring.

For instance, it takes just as many financial analysts as systems analysts to make sure that two massive accounting systems are successfully combined at Ingram Micro, Inc. in Santa Ana, Calif., says Dave Carlson, chief technology officer at the high-tech distribution giant. Ingram, which is in the middle of a global acquisition spree, has developed a methodology that makes sure pre-assessment, assessment and consolidation teams contain business *and* technology specialists.

"It takes continuous monitoring of your users for this to work," Knownow says. After all, he still spends 60% of his time on the road, mostly dealing with end-user issues in Town Hall-type meetings specifically designed to ease the transition to the new way of doing business. More than that, he says, do whatever it takes to ensure everyone buys in to the new order. Knownow recalls one meeting at a 300-employee site where he literally put up some key IT initiatives for a vote. "The employees themselves defined the goals and the strategies for the site, and they made themselves personally accountable for it. Otherwise, you will not succeed."

LAPLANTE IS A FREELANCE WRITER IN WOODSIDE, CALIF.

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CASE STUDY:

INGRAM BUYING SPREE

DISTRIBUTOR GOBBLES UP INTERNATIONAL BUSINESSES, WITHOUT IT INDIGESTION

BY ALICE LAPLANTE

It's late July, and Dave Carlson has just gotten back to southern California after yet another trip to Paris. This marks his 57th visit to Europe in an IT career that spans nearly three decades.

He'll be crossing international boundaries again within weeks to Chile or Singapore or Brussels — wherever his employer, Ingram Micro, Inc., needs him. These days, his presence is more likely to be required overseas than domestically, as Ingram Micro pursues a furious growth-through-acquisition strategy that shows no sign of abating.

Ingram Micro, in Santa Ana, Calif., is the world's largest wholesale distributor of technology products and services. It rang up $16.5 billion in sales in fiscal 1997 and operates facilities in 31 countries.

The company has a history of growing through acquisition, but the past 19 months have been extraordinary by any standards. "We used to do maybe one or two conversions [of acquired facilities] per year," Carlson says. "Now we're doing six times that number."

The strength of Ingram Micro's global acquisition strategy? An uncompromisingly centralized approach to enterprise systems management, Carlson says.

"Our philosophy is that every site worldwide runs on the same core information system," he says.

At the heart of this is a pricing and inventory management system that any Ingram Micro customer can search to find the nearest — or cheapest — source of a product, no matter what country it's in.

The backbone of Ingram Micro's global acquisition strategy is its suite of core applications, called IMpulse, which offers real-time information exchange between all Ingram Micro internal operations, its customers and its product manufacturers.

The system includes a World Wide Web site, a Web-based electronic purchasing system, an automated fax-response system and a plethora of integration tools that allow resellers to electronically connect with the Ingram Micro inventory database in real time.

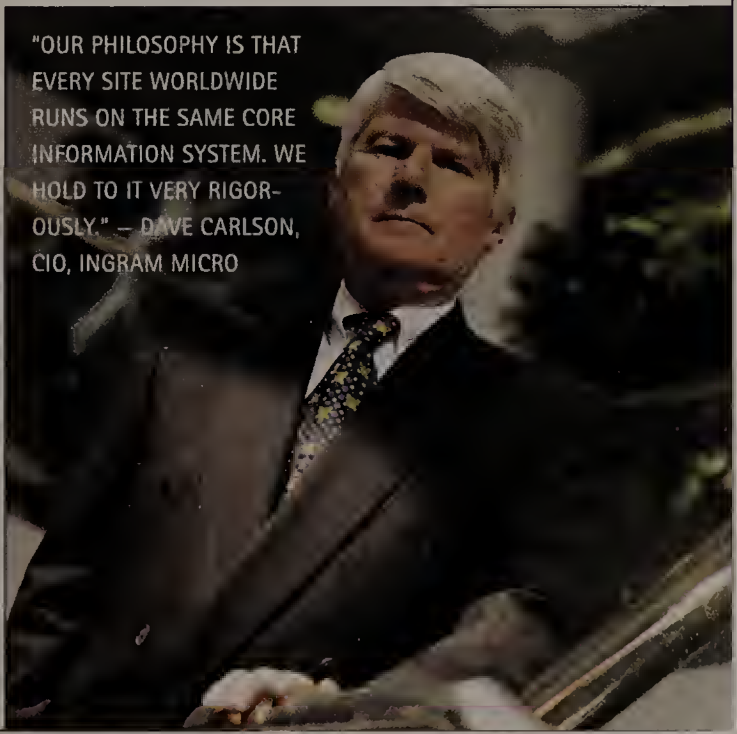
IMpulse runs on two CICS mainframes that connect to more than 30,000 servers and desktop computers worldwide via an ANS-based global wide-area network. Several client/server applications built using Oracle Corp. databases and PowerBuilder front ends surround and support this basic system, Carlson says.

And Ingram Micro has got the acquisition process down to a science. Once a general letter of intent has been signed with the target company, Carlson sends in a "pre-assessment" team of IT professionals to make initial determinations as to how long, and how complicated, the conversion to the core Ingram Micro systems will take. Then a full assessment team of eight or nine Ingram people is sent for a week. That team comprises IT workers and business specialists who analyze the business processes of the company in question. They compile the official "conversion plan," which considers the specific legal, regulatory, tax and operational requirements of the company in question.

Finally, a full conversion and business integration team — which includes the members of the assessment team and additional systems and business analysts — move in and actually convert the acquired company's information assets.

Of course, problems arise, such as moving the acquired company's inventory records into the IMpulse system. "Because there are so many different definitions of cost, we need local business expertise to analyze the acquired company's practices and definitions and convert them to Ingram's own," Carlson says. International-specific issues that arise involve local value-added taxes and other taxes specific to a particular country or region, he says.

Carlson says it is essential to have non-IT people involved in all aspects of the conversion. "You need people who really understand the business processes and financial books of the company in question," he says. IT determines how to convert data into the global IMpulse system, but the business experts "are absolutely necessary to make sure we understand the local way things work," he says.



"OUR PHILOSOPHY IS THAT EVERY SITE WORLDWIDE RUNS ON THE SAME CORE INFORMATION SYSTEM. WE HOLD TO IT VERY RIGOROUSLY." – DAVE CARLSON, CIO, INGRAM MICRO

DEBRA DIPAOLO

CASE STUDY:

WANG & OLIVETTI

FOR THIS DUO, INTEGRATION WILL SAVE THOUSANDS BY 2000

BY CHRISTINE STAITI

Back in the 1980s, a word processor company in Lowell, Mass., was battling a typewriter company in Ivrea, Italy, to become the king of technology as we know it.

But like many of their monolithic, now mostly defunct, competitors, both companies came limping into the '90s, stung respectively by a shakeout in the U.S. minicomputer market and a shakedown in Italian public finance.

So the history buffs were somewhat stunned last September, when Wang Laboratories, Inc., now in Billerica, Mass., and also known as Wang Global, announced it would acquire Olsy, Olivetti SpA's IT services division. Wang paid $390 million for the subsidiary. Olivetti received an 18.6% share of Wang.

The deal gives Wang, now a network and integration services company, a strong presence in Europe to complement its existing offerings in the U.S. and Asia. It gives Olivetti money to focus on its other interest, the capital-intensive telecommunications market. Although based in the U.S., Wang has a European headquarters in London and data centers in the U.S., Australia and Belgium.

"THE KEY IS TO MAKE IT ONE COMPANY AS QUICKLY AS POSSIBLE." — JOSEPH TUCCI, CEO AND CHAIRMAN AT WANG

DEBORAH DIPAULO

Managing the integration of his company's former rival is Joseph Tucci, CEO and chairman of Wang, and an old pro at mergers and acquisitions.

Where other CEOs scratch their heads, Tucci reaches for the Wang mergers and acquisitions template — a plan of procedures that he has developed from experience: "The key to integrating an acquired company is to absolutely make it one company as quickly as you can, and we're pursuing that here at the speed of light."

He says CEOs and information systems managers should start planning when the merger is announced — well before plans are final. "If you wait too long, you lose momentum, he says.

Tucci's second rule is to use meritocracy as the sole criterion when awarding top management positions. "The best people, whoever they are and wherever they come from, get the jobs," he says.

The deal was final in March this year. "Within two weeks after we owned the business, we had a strategy for what we were going to do and not going to do, all over the world," he says.

The company is moving just as fast on its information systems integration. Olsy's main systems fall into two categories: operational/financial and service/delivery.

The Olsy operational systems, which Olivetti had outsourced to Sema Group PLC for processing, needed some work, Tucci says. The company decided to move these applications to an SAP R/3 platform, which Wang already uses. This solved two problems: updating old systems and heading off a year 2000 disaster in the financial records. "SAP is already year 2000 compliant," Tucci explains, "so we bypass that problem entirely before we get there."

Along with the physical integration, Wang needed to tweak its SAP profile to accommodate Olsy's business. The whole process has taken a combined Wang/Olsy team five months to complete and is now in the testing phase, says Cormac O'Reilly, chief information officer at Wang. A trial rollout is scheduled to begin in October in Italy, the U.K. and the U.S., with an aggressive 18-country rollout in the first quarter of 2000.

Integrating the two systems, at a cost of $50 million, has provided significant savings to the company through economies of scale, O'Reilly says. "Our early analysis is that the SAP cost per user will drop from $9,000 per year to $2,000 when integration is complete," he says.

AGAINST THE GRAIN

Wang is taking a somewhat unorthodox approach to the service/delivery systems. The company will port these systems twice in the next five to seven years, a plan that Tucci defends. "We thought it was way too risky to port both [types of systems] over at the same time," especially in light of the coming millennium. "Porting the operational systems to SAP will take out a lot of administrative costs, which are way too high at Olsy. The service/delivery systems are homegrown, but they're newer and really quite good."

For now, Wang will integrate the current Olsy delivery systems into the existing Wang setup, finishing the year 2000 compliance work that Olivetti already started. Wang was already planning to migrate its service/delivery systems from Unix to a Windows NT client/server platform. The Olsy systems will become a part of that migration, and the whole project should be completed sometime after 2001.

And what would company founder Dr. An Wang say now? "I think both founders would look down and say, "This sure is a different company.' " Tucci says. "But I'm sure both of them would approve."

STAITI IS A FREELANCE TECHNOLOGY AND BUSINESS WRITER. SHE LIVES IN ROME.

HOW TO SABOTAGE A MULTICULTURAL MERGER? "IGNORE IT"

BY STAN LEPEAK

"Bigger is better" is a near-universal truism in today's economy. In fact, mergers and acquisitions volume around the world will reach $2.5 trillion by year's end. But most merger/acquisition efforts fail to deliver anticipated benefits in a timely fashion. Too many companies underestimate the difficulty of merging the IT systems and organizations — difficulties that are muliplied when the companies involved are multinationals of different nationalities.

LARRY GOODE

A parade of multinationals has pursued mergers under the auspices of increased shareholder value, improved customer intimacy, greater economies of scale or consistent global services. Look at Citicorp/Travelers, AT&T/TCI, Daimler-Benz/Chrysler. Yet, IT integration delays caused several well-publicized mishaps. Disparate IT systems will also cause delays for global telecommunication and financial services companies hoping to broaden their product offerings via a merger.

One way to address these potential pitfalls is through expanded due diligence, performed by qualified individuals (not accountants, bankers or lawyers). The process must focus on the following areas:

- ALIGNMENT: How well does the IT group support users' needs? Do IT and users "get along?" Is the IT group viewed as a partner? A cost center? A liability?
- ORGANIZATIONAL MODEL: What is the degree of centralization/decentralization? What is the reporting structure and degree of unit autonomy?
- HUMAN CAPITAL: Is there a skills inventory? Are staff skills competitive and aligned with users' needs?
- SYSTEMS MATURITY: Is systems functionally competitive? Are applications at current releases? Year 2000 compliant?
- PLANNING/GOVERNANCE: Do formal IT strategies and architecture exist? Are chargeback mechanisms and service-level agreements in place?
- GLOBAL VARIANCES: Is a global perspective apparent in the IT organizational and technical variables? For instance, reporting/decision-making hierarchies, staff autonomy, employment rules and work habits, as well as systems compatibility and standards.

Once this more granular due diligence is completed, organizations should map the findings, identify gaps and ascertain their relative importance. It is then possible to explore various organizational models and their associated strengths/weaknesses, estimate integration costs and time frames and construct a list of the most serious integration roadblocks. Keep these important points in mind:

- MERGERS OF EQUALS DON'T WORK: One group must lead the overall effort. Democracy has its place, but not in many aspects of business and IT.
- CULTURE CONFLICT CAN KILL: Culture politics (staff interaction norms, different legal and cultural staffing standards) can wreak havoc in a merger. This has been strongly evidenced in the pharmaceuticals industry.
- STAFF ATTRITION IS INEVITABLE: Good staff will leave, and deadwood will remain, especially if the transition drags on without clear goals. This necessitates retraining and reskilling programs.
- BIGGER ISN'T ALWAYS BETTER: Often, the smaller, more nimble IT group will have a more innovative approach to IT's usage.
- SENIOR MANAGEMENT SUPPORT AND DIRECTION IS NEEDED: IT groups must understand management's direction or risk setting conflicting goals.
- BUSINESS/USER NEEDS MUST DRIVE IT PLANNING: The new IT group's structure, focus and expertise must support key business processes. IT groups must then educate management on the potential IT-related consolidation challenges. That effort must start before a merger/acquisition effort is under way.

Finally, companies should consider whether a merger/acquisition is the best way to achieve its business goals.

Partnerships, alliances, "virtual" organizations or "keiretsu" arrangements are viable alternatives. Integration demands are still formidable, but primarily from the technical, not cultural, perspective.

And each can retain greater flexibility and nimbleness. That is especially important, in case it turns out that bigger is not better.

LEPEAK IS VICE PRESIDENT OF ADVANCED INFORMATION MANAGEMENT SERVICES AT META GROUP, INC., STAMFORD, CONN.

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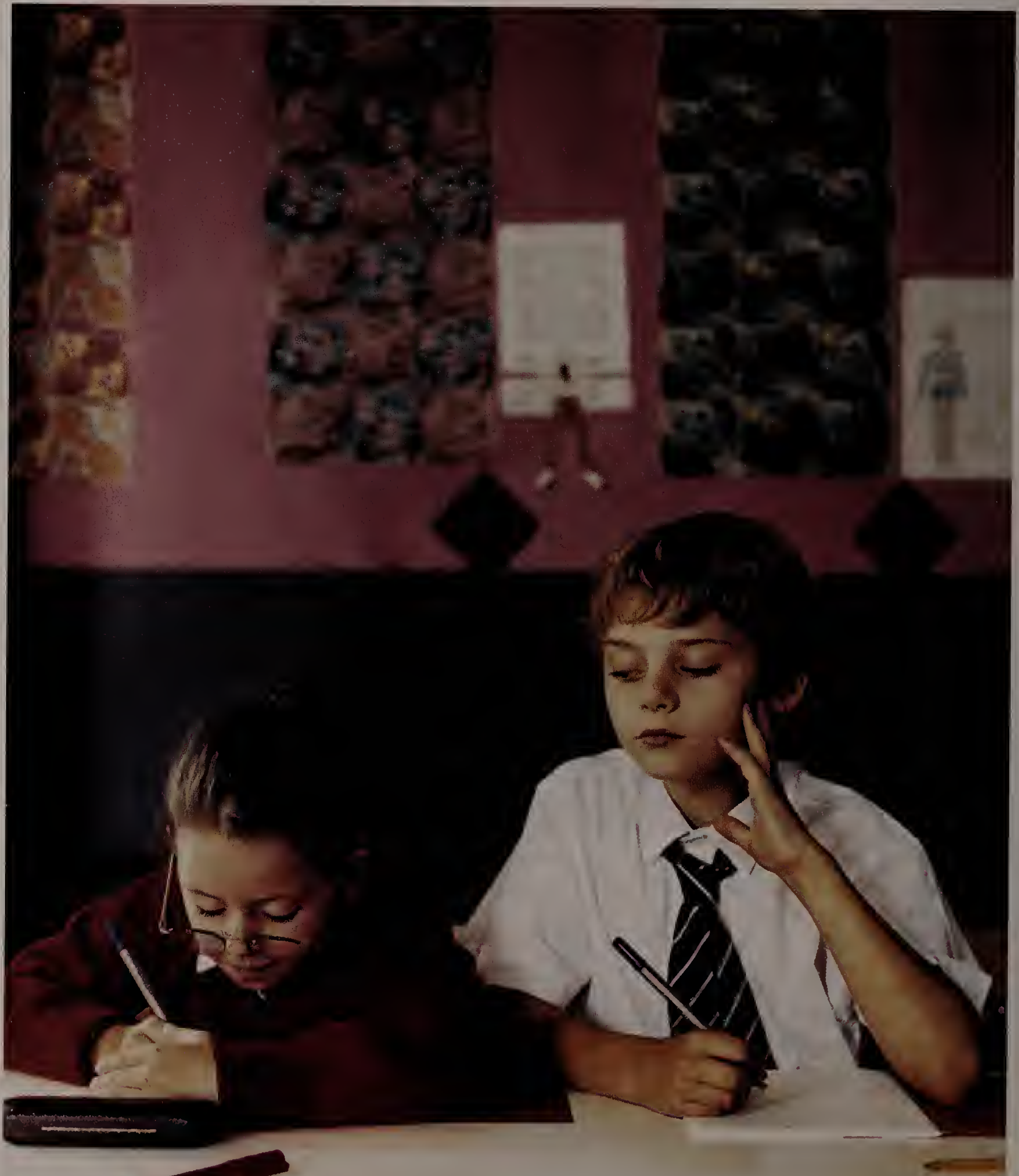

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Internet buying standard took a while

ONTINUED FROM PAGE 43

it from Epic Systems Corp. in Madison, Wis., have helped to alleviate some of the rogramming woes for Boise Cascade, hich has a homegrown electronic sysem for processing customer orders.

Analysts said more companies, partic larly on the buying side, are likely to urn to packaged software from compa ies such as Ariba Technologies, Inc., Commerce One, Inc., IBM, Microsoft Corp. and Netscape Communications Corp. But the vendors' OBI-compliant of erings just started to hit the market.

United Technologies Corp. has been a nember of the OBI Consortium for ome time and would like to implement he standard. But the Hartford, Conn.-ased manufacturer has outsourced to BM $6 billion of the annual purchasing hat isn't related to its manufacturing usiness, and IBM didn't have an OBI-ompliant offering on the buying side. We're waiting for IBM to take the next nove," said Daniel O'Malley, manager of urchasing at United Technology's Reearch Center in East Hartford, Conn.

Among user companies, suppliers are till waiting for buyers to get up to peed, and vice versa. Both potentially tand to benefit from OBI. A buying ompany will be able to place orders vith a selling company without having o host the supplier catalog on its in ranet or make proprietary adjustments its procurement software.

Some suppliers, such as Boise Casade and Office Depot, Inc., have been nanaging business rules and approval rocesses for customers who don't want he hassle or expense of setting up an nternet purchasing system. If they ould off-load that management to customers — as OBI would allow — that would lessen their load.

Digital certificates are a key to OBI working well. They can store more information — organization, job title, purchasing authority — than a simple user name/password authentication mechanism allows. Buying companies can maintain the user profiles in one place, and if they choose to deal with many suppliers over the Internet, they won't have to change the profiles on a supplier-by-supplier basis.

However, acceptance of digital certificates has lagged because of the cost of issuing them, the complexity of managing them and problems with interoperation, said Roy Satterthwaite, an analyst at Gartner Group, Inc. in Stamford, Conn. "Certificates just haven't taken off as expected," he said. ☐

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nline mortgages

ONTINUED FROM PAGE 43

enders, E-Loan is a mortgage broker hat actually processes the mortgage pplication and earns a fee for each ransaction.

Key to E-Loan's strategy is E-Track, a ombination document management nd workflow system designed to autonate much of the paper-pushing and elephoning now needed to close a mortage, said E-Loan's president, Janina awlowski.

For example, the software automatcally sends E-mail that tells customers bout the status of their mortgage appliation and recommends the best deals or borrowers.

The Web-based service works well for elatively straightforward mortgages, uch as when a good credit risk takes out conventional mortgage on a home, Pawlowski said. But human interaction is still needed for more complex cases, such as a second mortgage or a customer who has bad credit, she said. ☐

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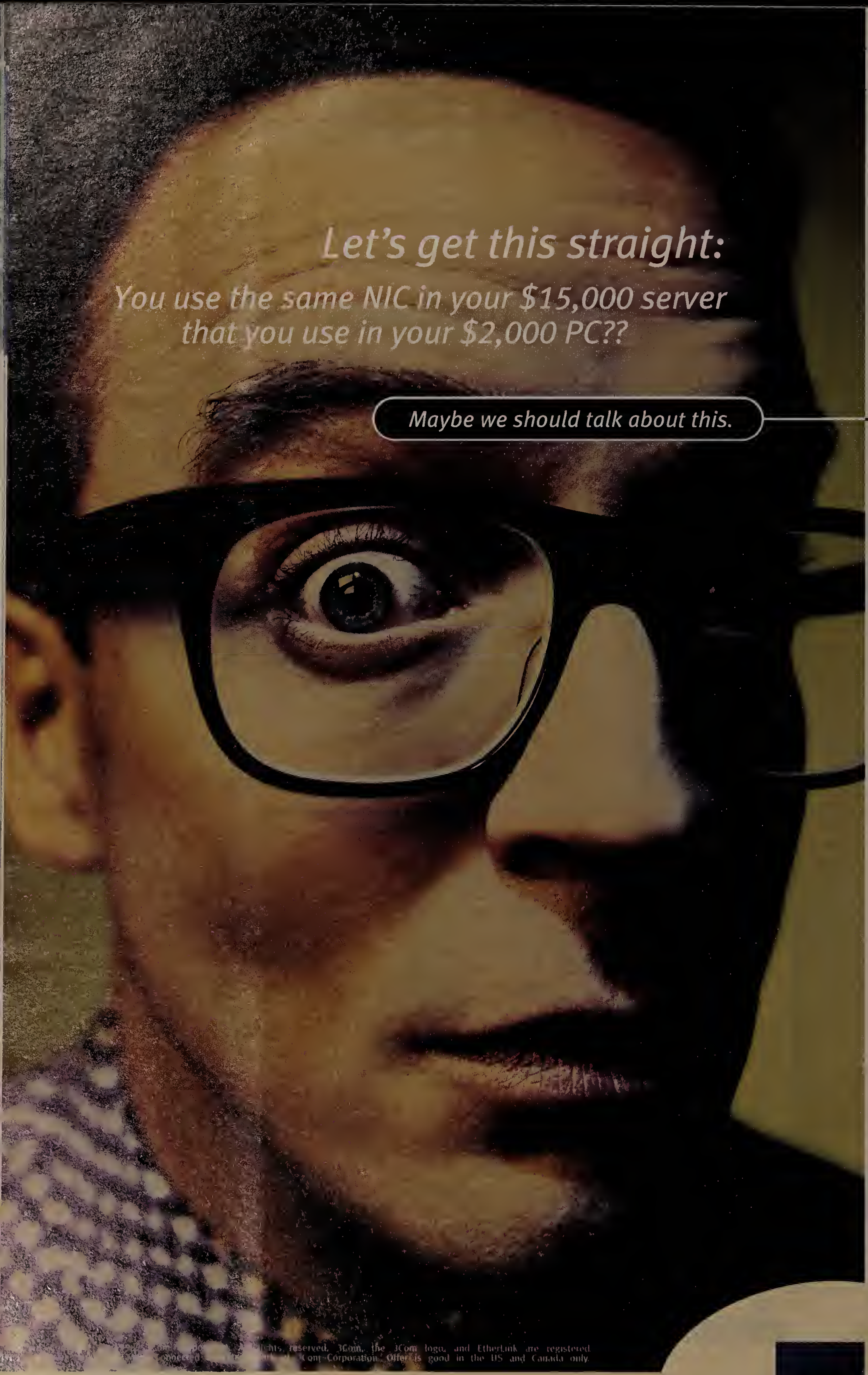
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Briefs

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Cable modem	500K to 30M bit/sec.
ISDN	56K to 128K bit/sec.
Satellite	400K bit/sec.
XDSL	1.5M to 9M bit/sec.

Source: Walsh-Lowe & Associates, Inc., Hoboken, N.J.

Cisco makes $157M bid

Cisco Systems, Inc. will acquire wireless technology vendor Clarity Wireless Corp. in Belmont, Calif., for $157 million. Clarity provides microwave systems designed to work in obstructed environments, said San Jose, Calif.-based Cisco. Cisco has been a minority investor in privately held Clarity. The acquisition is expected to be completed by November.

Excite upgrades E-mail

Redwood City, Calif.-based Excite, Inc. last week said it will use Software.com's InterMail messaging platform to provide E-mail service to millions of users, starting this fall. Excite launched its free World Wide Web mail service last fall, but the deal will let the company upgrade the functionality of that service, officials said. Excite was attracted to InterMail's ability to scale to millions of users and its customizable interface, the company said. Software.com is in Santa Barbara, Calif.

Simultaneous queries

Dataware Technologies, Inc. in Cambridge, Mass., last week announced Dataware II Knowledge Query Server, which lets users simultaneously query multiple data sources such as Notes databases, internal and external Web sites and document management systems. It returns results in a merged list. Pricing starts at $9,500 for 500 end-user licenses.

Keep a tighter lid on network traffic

▸ *Tailoring apps to data needs and using cache engines can help*

By Bob Wallace

WAN STRATEGIES

ALTHOUGH bandwidth is plentiful and increasingly less expensive on campus networks, IS managers still find that wide-area network capacity carries a big price tag and isn't available in wide enough pipes, which creates bottlenecks.

Savvy information systems managers are crafting strategies to deal with that age-old problem. They include developing more bandwidth-efficient applications, moving away from capacity-hungry protocols and using systems to cache frequently used World Wide Web pages.

The problem is this: LAN and WAN speeds rarely match up. For example, most LANs run at 10M, 16M and 100M bit/sec., but WAN service is available at only 1.544M (T1) and 45M bit/sec. speeds. Although affordable for large corporations, T1 operates at only one-tenth the speed of an Ethernet LAN. Worse still, many companies go with sub-T1 speed pipes because they are cheaper.

Jim Fey is dealing with the problem by giving programmers tips on how to write more bandwidth-efficient applications.

"Programmers have to consider

Network, page 48

STELLA JOHNSON

EideBailly's David Stone plans move to NetWare 5.0 for its WAN efficiency

E-mail filter speeds job placement

By Roberta Fusaro

Devon Consulting's Lisa Fraimow: "This is daily notification vs. weekly"

CITING A NEED for speed — and quality — some IT recruiters are relying on a new E-mail notification service from Infoworks USA to help them place candidates in the highly competitive technology job market.

InfoAgent, from Shrewsbury, N.J.-based Infoworks, an electronic recruiting service focused on information technology, notifies client companies via E-mail when the site receives a resume that fits a client's search parameters.

It previously took recruiters about 30 minutes to go through all the resumes in their folder at the Infoworks World Wide Web site. Now it takes about 30 seconds to respond to the filtered E-mail, company officials said.

The concept of having filtered information sent via E-mail isn't unique; some of the larger Internet job sites, such as CareerMosaic and The Monster Board, have tried it, said Steve Weissman, an analyst at Kinetic Information, a technology research firm in Waltham, Mass. But the concept hasn't often been paired with a niche service such as that offered by Infoworks, he said.

How well the service is accepted depends on how the manager works, Weissman said. Some people check their E-mail more routinely than they access the Internet, he said.

"Having stuff land in your in-basket [has to be] a big advantage for a busy manager," he said.

InfoAgent E-mail already has helped streamline the search process at Devon Consulting, Inc., said Lisa Fraimow, Internet

E-mail filter, page 48

NetWare 5.0 features have users gushing

By Sharon Gaudin

NOVELL, INC. is scoring a three-pronged hit with some corporate users, who call NetWare 5.0 easier to use, more powerful and more scalable.

"NetWare 5.0 is all about back-end benefits," said Jim Graham Jr., manager of architecture at Atlanta-based BellSouth Business Systems, Inc., which is slated to upgrade to NetWare 5.0 on 80 servers by the end of the month. "This is really going to make a difference in terms of administration and reducing complexity and costs."

NetWare 5.0 shipped two weeks ago with a slew of new features and functions, including an updated version of Novell Directory Services (NDS), native TCP/IP support and bundled entry-level versions of Oracle Corp.'s Oracle8 database and Novell's ZENworks management utility.

Several users said that's just what the administrator ordered.

"Installing NetWare 5.0 will really cut back on our bandwidth utilization, and that's become more and more of a problem for us," said Chris McGuire, senior network administrator at Birmingham, Ala.-based Compass Bancshares, Inc., which has been using IPX, Novell's proprietary bandwidth-heavy protocol for NetWare. "Using TCP/IP is going to save me bandwidth and the administrative time it took to manage two separate protocols."

McGuire, who said it's about time Novell moved NetWare into the TCP/IP arena, added that once the servers are upgraded, he will disable IPX and just run TCP/IP — the standard Internet protocol.

NetWare 5.0, page 48

Novell's updated operating system, NetWare 5.0, is impressing corporate users with new features and functions. Here are some of them:

- **An updated version of NDS**
- **Native TCP/IP**
- **Bundled versions of Oracle8 and ZENworks**
- **Increased scalability**
- **Updated Java Virtual Machine**

Network traffic jams

CONTINUED FROM PAGE 47

WAN STRATEGIES

bandwidth for every application they write," said Fey, director of strategic technologies at PMI Mortgage Co. in San Francisco. "Focusing on where the [data collection] function happens and factoring in bandwidth helps programmers make good decisions."

For example, when a remote user accesses a full database of information to generate a report, all traffic has to travel over the WAN. But if the application instructs the server to send back only the pertinent data, "there's a very minimal impact on WAN bandwidth," Fey explained.

David Stone said moving to the Internet Protocol helps conserve WAN capacity.

"We're a Novell IPX shop and have found it's not well-suited for the WAN because it generates lots of protocol overhead," said Stone, IS manager at accounting firm EideBailly LLP in Fargo, N.D. "It's not very efficient because devices are continually broadcasting their whereabouts over the network."

The company plans to become an IP-only shop by upgrading to Novell, Inc.'s NetWare 5.0, he added.

George Deyett said he is looking to Web caching as a way to save on WAN bandwidth.

"Using caching engines can cut down on the huge amount of 'net traffic," said Deyett, telecommunications operations manager at camera maker Polaroid Corp. in Waltham, Mass. With Web caching, frequently accessed pages are stored on a server at the user site so employees access them there rather than over a WAN link, he explained.

Deyett is an advocate of products that enable users to initiate database queries and receive only screen updates, as opposed to an entire information transfer, over the WAN. "Screen updates require much less bandwidth than whole transactions," he said.

Leo Esposito has found that a bandwidth management device from start-up Apogee, Inc. that let him switch from allocating WAN costs based on department size to individual employees has helped make workers more capacity-conscious.

"Allocating by department head count didn't reward anyone for being efficient or punish anyone for being inefficient," recalled Esposito, a senior vice president at Fidelity Investments, Inc. in Boston. "Now we have people doing things like looking at compression software and re-architecting some applications to make things more efficient. We had told people they could have any application they wanted as long as they were willing to pay for it." □

NetWare 5.0

CONTINUED FROM PAGE 47

"That will enable us to put off upgrading our network and buying new hardware," McGuire said. "We'll get more bandwidth, put off a really big investment and still continue to function."

Dan Kusnetzky, an analyst at International Data Corp. (IDC) in Sarasota, Fla., said corporate users have been asking for TCP/IP capabilities for several years and will be relieved to see them in NetWare 5.0. IDC is a sister company to *Computerworld*.

"It makes it more difficult to manage an environment when you have two protocol stacks," Kusnetzky said. "Many times people use TCP/IP to talk to their servers but use IPX to communicate from a client to Unix or a mainframe. This is going to make it much easier on the [administrator]."

Jeff Miller, senior enterprise network engineer at the Chicago Mercantile Exchange, called NetWare's native TCP/IP capabilities "phenomenal" but added that he was equally impressed with the operating system installation process.

"When the install was done, the server was up and running," Miller said. "It picked up the drivers, all the hardware, the Ethernet cards. I didn't have to load anything. Before, there was always so much more to do after the install. Normally, to get a server up, it took an hour to two hours. This took maybe half an hour."

Amid all the gushing, there were a few complaints.

One gripe was that Console One, the Java-based administration tool, is pretty thin on features. "You can only add users and the NDS," McGuire said. "You can't administrate GroupWise, DNS or DHTP. They said the tool would be there, but they never said what would be in it, I guess."

And Kusnetzky said that although NetWare is a good upgrade for Novell's installed base in basically the file-and-print world, it still isn't going to be a big buy as an application server.

Version 5.0 brings NetWare's support of TCP/IP up to par with that of its competitor, Microsoft Corp.'s Windows NT. NetWare also has a strong central directory, a feature that won't appear in NT until Version 5.0, due in eight to 12 months. NetWare also is popular as a file-and-print server, a role NT also serves, although NT is considered more of an application server than NetWare, analysts said. □

E-mail filter

CONTINUED FROM PAGE 47

strategy manager at the Wayne, Pa.-based company. Devon has 10 recruiters and matches IT consultants with contracts at Fortune 1,000 companies. "This is daily notification vs. weekly," she said.

The service lets Fraimow configure it so that E-mail notifications are sent to either multiple recruiters on the team or to specialists in certain skills areas.

Fraimow declined to say what other job boards she had used previously, "but the ease of use and quality weren't there," she said.

Infoworks already has an in-house qualifying process for posting a resume to its job site, so the quality of candidates Devon receives is high, Fraimow said. "With other services, we could get people from Timbuktu. The subset of resumes that you're getting is a better match," she said.

Fraimow said she isn't afraid of losing some candidates because the service filters them out. "You can always go into the resume database and do a search [manually]. And you can always change your parameters," she said.

InfoAgent costs about $7,500 per year. Similar Infoworks search agents for job seekers — JobAgent and SearchAgent — are free and can be downloaded from the company's Web site (*www.it123.com*). □

Lotus enhances ESuite, connectivity

By Jana Sanchez-Klein, Nancy Weil and Roberta Fusaro
BERLIN

THERE WERE the expected slew of announcements of upgrades and new software at Lotusphere Europe '98 last week, including an enhanced version of Lotus Development Corp.'s Java-based office package ESuite and its new connectivity products.

Among the announcements was a 30% discount for customers of competing messaging products who switch to Lotus Notes. In the past year, the Cambridge, Mass.-based company, which is owned by IBM, has concentrated on discounts and easy migration tools to move users of its own legacy mail systems — such as CC:Mail and IBM OfficeVision and Professional Office System — to Notes/Domino.

"I like that [ESuite] supports JavaBeans. I want to use the standards I want."
– Mads Bondo Dydenborg, Novo Nordisk

Under the new program, customers with licenses for competing products could buy Notes/Domino for $24 per seat. Users can upgrade to future versions of Notes during the first year.

On the new product front, Lotus rolled out ESuite Release 1.5, a Java-based software package that includes an E-mail client, a browser, a word processor, a spreadsheet, a calendar, an address book and presentation applets with a shared interface. It also includes the ESuite DevPack, designed to allow faster development of interactive intranet and extranet applications using ESuite software.

Release 1.5 works with the application development tool Notes Designer for Domino 4.6.2 and allows developers to create applet interfaces using Notes Designer. The upgrade improves support for IBM's VisualAge for Java 2.0 and Symantec Corp.'s Visual Cafe 2.5 development tools, according to Lotus.

Users at the show were interested, but noncommittal. "We are thinking about installing ESuite, but we won't do it yet," said Kai Probst, an information systems manager at Daimler-Benz AG. "We are working with Microsoft Office products as a standard in our company. We might switch [to ESuite] if we are sure of the performance and availability. . . . It is a possibility, but not this year."

Mads Bondo Dydenborg, an information technology developer at Novo Nordisk AS, a Norwegian company that makes insulin and detergent enzymes, was taking home a demonstration copy of ESuite for a trial run.

"The little I know about it, it seems very nice," he said. "I like that it supports JavaBeans. I want to use the standards I want. I want choice — compared with Microsoft, where you are stuck with their inferior standards. I like very much that the applets support standards like XML, POP3, IMAP. . . . We are looking into it."

Besides ESuite Release 1.5, Lotus announced an expanded multilingual application development tool designed for collaborative World Wide Web applications.

"We do business in 120 countries," said Web developer Thomas Kottene, who works at Norsk Hydro ASA, a Norwegian agricultural, light metals, oil and gas company. "Sometimes a manager asks me to develop an intranet page in another language. The great benefit of this would be to automate the process of finding the logic behind that kind of development."

Another Lotus announcement involved new connectors designed to help transaction processing systems link with transactional data in Domino applications. The connectors are available for relational database management and enterprise resource planning (ERP) systems.

"We are at the end of a selection process for ERP solutions, and we have to connect that ERP to our Notes environment," said Martijn Balhuizen, a data communications analyst at Ballast Nedan International, a construction firm in the Netherlands. "This is going to be important." □

Sanchez-Klein and Weil write for the IDG News Service.

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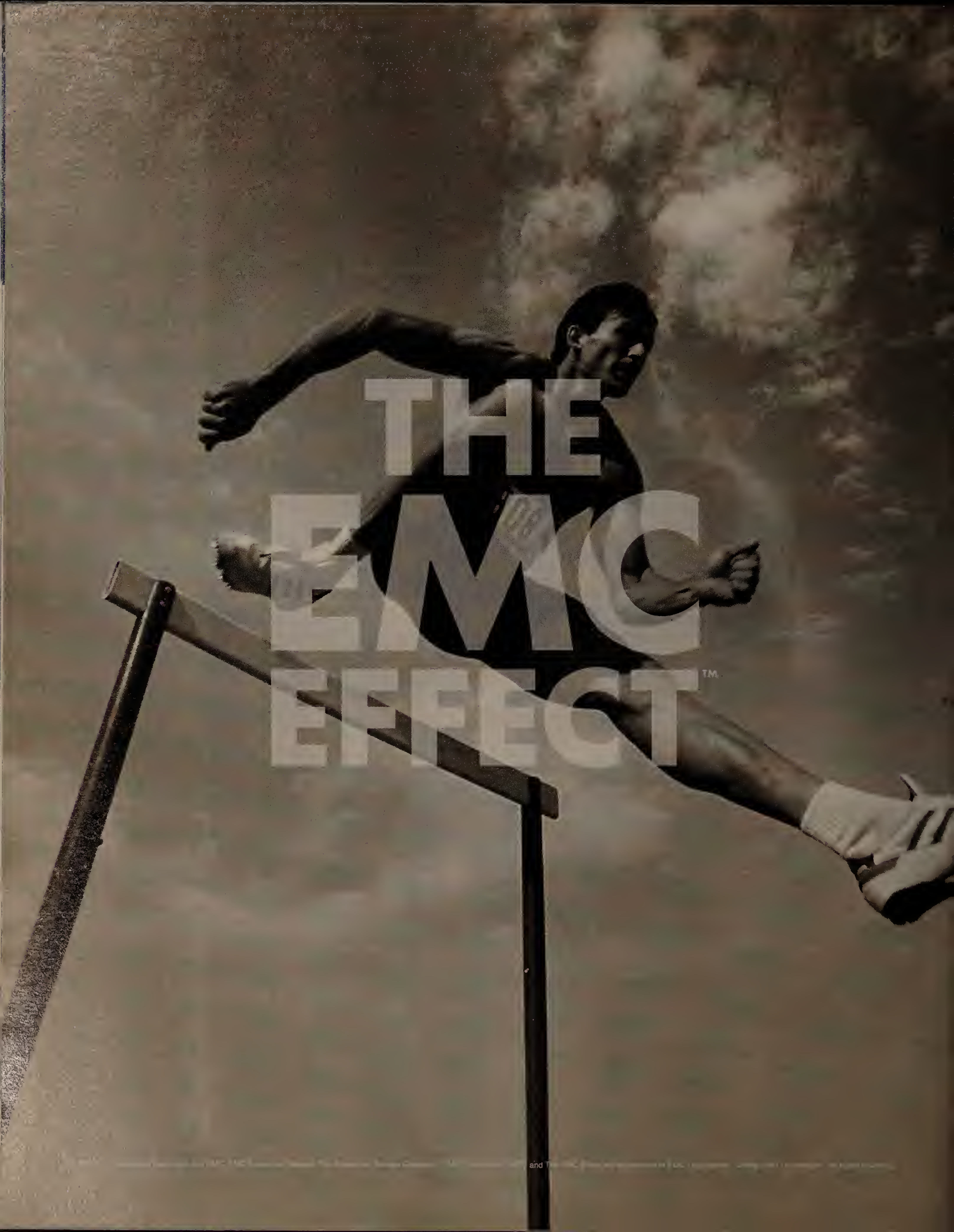
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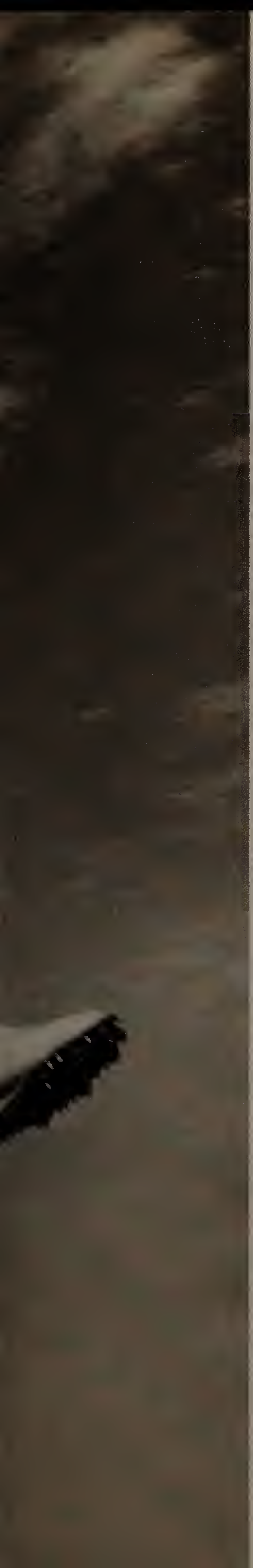

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NEW PRODUCTS

ENTERA, INC has announced the TeraNode E series, a multiprotocol Internet caching node for Internet traffic management.

The Pleasanton, Calif., company says the rack-mountable hardware/software system allows caching and distribution of multiple standard protocols such as Network News Transfer Protocol, Hypertext Transfer Protocol and streaming media. It can be deployed at any point in the network, like a router or switch, and has an open application programming interface for third-party plug-ins.

Pricing starts at $10,000 for systems with 30G bytes of storage.

Entera
(925) 730-2200
www.entera.com

ONEBOX NETWORKS, INC. has announced the ON-1000, an intranet/extranet server that combines LAN and WAN connectivity in one box.

The Westlake Village, Calif., company says the box combines IP routing, multiple WAN links, 10/100 M bit/sec. Ethernet LAN routing, firewall security, virtual private networking and multiport 10/100 M bit/sec. Ethernet and IP-VLAN switching. It can accommodate up to six Peripheral Component Interconnect modules, and a base system includes one router port, one T1 port and support for up to 50 concurrent users.

Pricing ranges from $5,995 to $29,995.

OneBox Networks
(805) 370-5858
www.oneboxnetworks.com

SHOMITI SYSTEMS, INC. has announced Portable Surveyor ($4,995), a LAN analysis tool for field service engineers with CardBus-enabled Windows laptops.

The San Jose, Calif., company says the hardware/software device provides error counters and can capture error packets using a 10/100BaseT CardBus network interface. It supports real-time network and application layer statistics and includes seven-layer protocol decodes of more than 150 network protocols.

Shomiti Systems
(408) 437-3940
www.shomiti.com

FLOWWISE NETWORKS has announced the IMS 1600 and the IMS 800, autoconfiguring router accelerators.

According to the San Jose, Calif., company, the routers were designed to ease network congestion by off-loading IP traffic routing from conventional backbone routers. The IMS 1600 ($7,950) has 16 Fast Ethernet ports (full- or half-duplex) that support wire-speed routing and switching on every port. The IMS 800 ($4,995) has eight Fast Ethernet ports.

FlowWise Networks
(408) 474-0385
www.flowwise.com

PERLE SYSTEMS, INC. has announced the 833IS, a remote-access switch for small to midsize companies.

The Westmont, Ill., company says the switch supports eight to 80 dial-in users who use a mix of analog modems and Integrated Services Digital Networks. It provides autosensing 10/100 M bit/sec. Ethernet as the standard, but an optional 4/16 Token Ring card also is available.

Pricing starts at $5,995 for four bit rate interface connectors and eight digital signal processor modems.

Perle Systems
(630) 789 3171
www.perle.com

SHIVA CORP. has announced Shiva Access Manager 4.0, remote-access authentication and accounting software for Windows NT and Windows 95/98.

According to the Bedford, Mass., company, the software centralizes the management of user lists, certificate authority, virtual private networks and direct-dial monitoring. It includes Lightweight Directory Access Protocol and Simple Network Management Protocol support, as well as IP address pooling.

An unlimited license costs $4,000.

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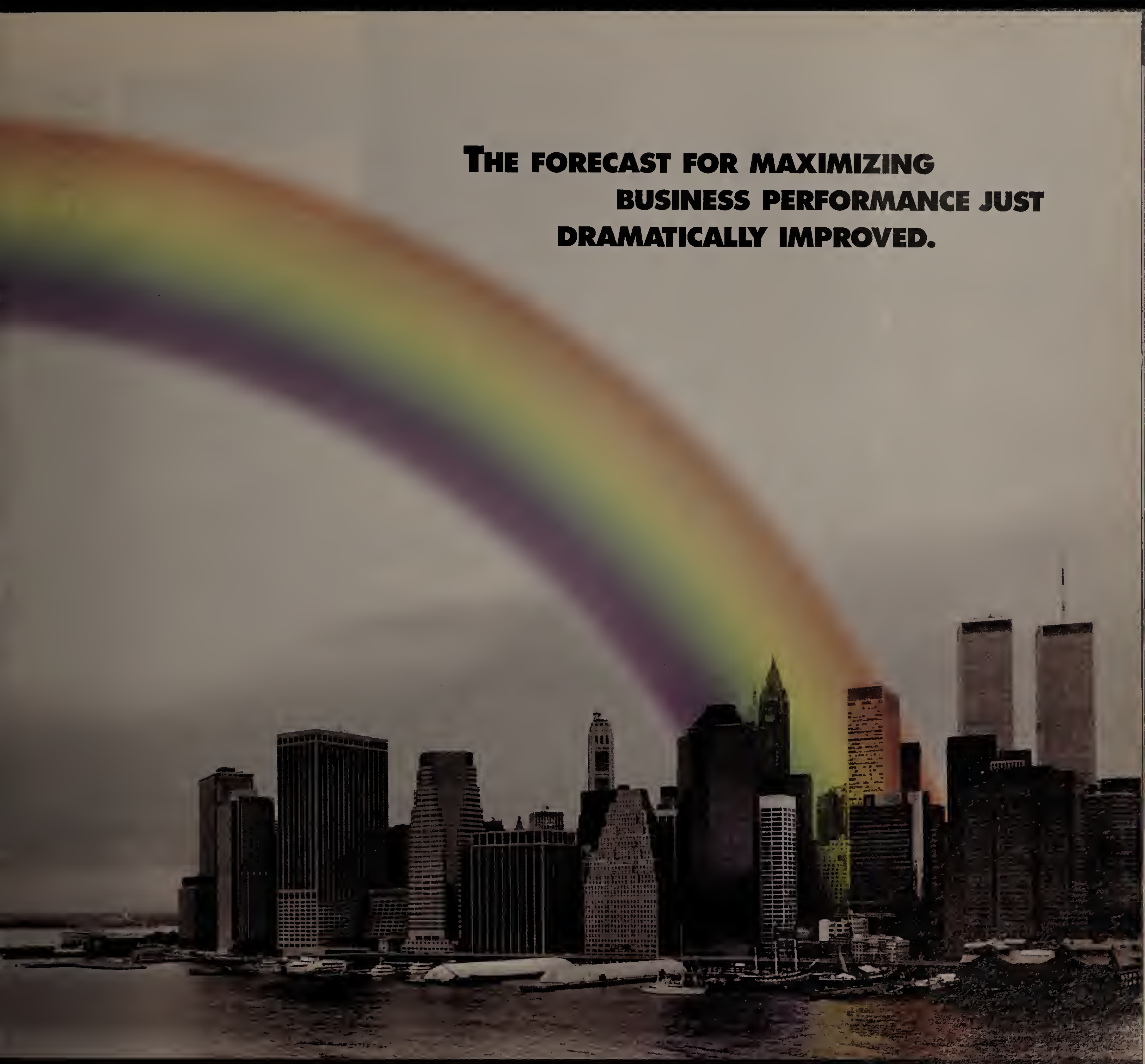

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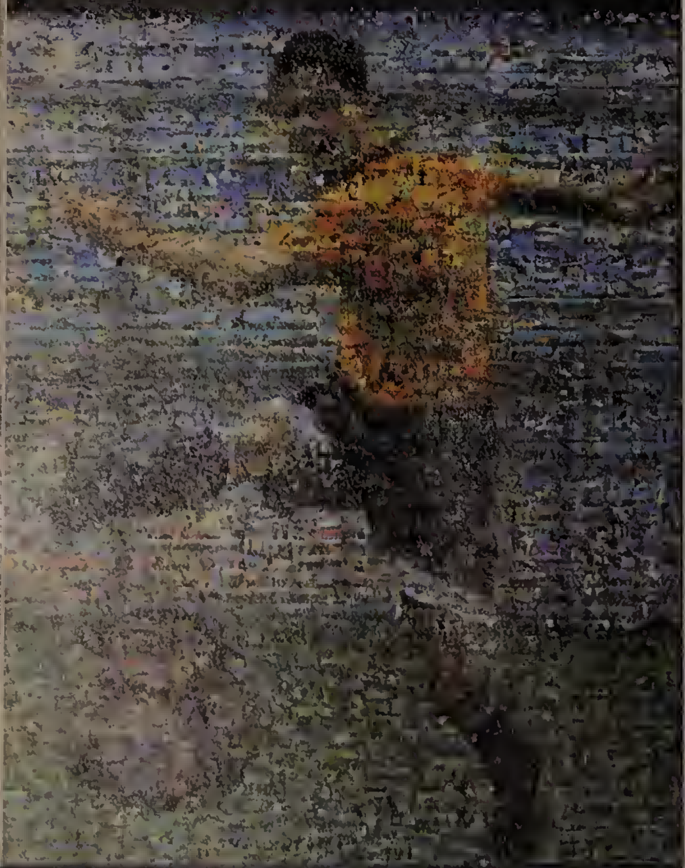

It was one of the most visited Web sites of all time. In all, the France '98 site, powered by software from Sybase, generated over 1.5 billion hits from more than 170 countries. Shoppers purchased World Cup merchandise via an e-commerce store that averaged over 760,000 hits per day. Journalists and staff members relied on an intricate intranet to access valuable, timely information. From the Web to e-commerce to intranets, France '98 was a global success, and one that we can replicate for businesses like yours. With our proven technology, we can create complete Web solutions that enable your company to bring together and distribute mountains of information to provide the competitive advantage you need to achieve your organizational goals. To learn more about the success of the France '98 Web solution and what we can do for your business, visit www.sybase.com/worldcup or call 1-800-8-SYBASE (Ref. CPCW4).

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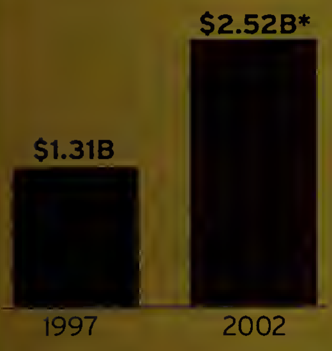
Briefs

Spending on transportation industry applications



*Projected

Source: G2R, Inc., Mountain View, Calif.

Updated query tool

Business Objects, Inc. in San Jose, Calif., has updated its browser-based enterprise query, reporting and online analytical processing (OLAP) software. WebIntelligence 2.0's enhancements focus on extranet users' ability to work with multiple firewalls and auditing capabilities for tracking user activity and monitoring system functions. WebIntelligence costs $595; the OLAP module costs $395.

Utility suite

Network Associates, Inc. in Santa Clara, Calif., has released McAfee Office, a $99 suite that combines several utilities once sold separately. It includes VirusScan, Nuts and Bolts 98, First Aid 98, UnInstaller, Guard Dog, PGP Security, Hurricane 98, Oil Change, 2000 ToolBox and Netopia Virtual Office. Symantec Corp. in Cupertino, Calif., offers a similar suite.

Embedded database kit

Pervasive Software, Inc. in Austin, Texas, has announced the Pervasive SQL Software Developers Kit, a suite of utilities that let users build applications based on Pervasive's embedded database engine. The suite includes the Inet Data Server, ActiveX controls, a pure Java application programming interface, support for all major Windows development environments and an Open Database Connectivity driver. The kit costs $295.

Users wary of hard sell at show

▸ *Some users not keen on Sapphire anymore*

By Craig Stedman

FOR USERS, a vendor-run conference such as SAP AG's recent Sapphire '98 extravaganza can be a networking gold mine — or one big sales pitch.

Some current and prospective users of SAP's R/3 business applications said that this month's conference in Los Angeles was a golden opportunity to talk shop with a broad cross section of their peers.

And SAP certainly didn't have trouble attracting a crowd. About 9,000 R/3 users and tire-kickers ponied up the $1,700 fee to go, sources said. Total attendance — including employees from SAP and other vendors — was expected to top 15,000, up from 12,100 at Sapphire '97 and 8,300 the year before.

Veteran users don't find much "bang for the buck" at sales-oriented shows.
– Hydro Agri's Andy Hafer

But several experienced R/3 users said they sent only token delegations to Los Angeles, mainly to keep current with what SAP is telling customers. For those users, Sapphire is mostly a venue for glitz, glamour and the hard sell.

"We used to send a whole team," said Andy Hafer, director of information management at Hydro Agri North America, Inc. in Tampa, Fla. "But we found it's so marketing-oriented now that those of us who have been around the block with SAP don't get much bang for the buck."

Hydro Agri, which makes agricultural fertilizers and pesticides, also usually ended up being "the information givers

Users wary, page 56

Drug maker simplifies deals

By Julia King

EVERY YEAR, thousands of hospitals and health care networks dispense Sanofi, Inc.'s prescription drugs to patients with cardiovascular problems and diseases of the central nervous system.

Yet what each group pays for the medicines varies widely. One hospital may receive a 2% discount on each Sanofi drug it prescribes. Another may get a 2% price break on the first 1,000 doses and a 4% discount thereafter.

"The contracts can quickly go from very simple to very complex," said David Claeys, associate director of contracting operations. "What we're looking for is sales, and there's any number of ways customers can get rewarded for that."

Sanofi's Craig Ashinoff (left) and David Claeys needed to track one-of-a-kind deals

To keep track of those one-of-a-kind deals, Sanofi recently migrated from a proprietary mainframe-based system to a client/server contract management system from System Consulting Corp. in Portland, Maine. Sanofi expects the $1.5

Drug maker, page 56

Automated billing saves bank time

By Thomas Hoffman

IT USED TO TAKE Barclays Global Investors 12 weeks or longer to send out quarterly invoices to its 600-plus institutional clients because its Unix system could process only 40% of its bills without manual intervention.

The San Francisco-based investment bank licked that problem by working with Tenfold Corp. in Draper, Utah, to jointly develop a fully automated revenue-management system that can generate the same number of bills in half the time.

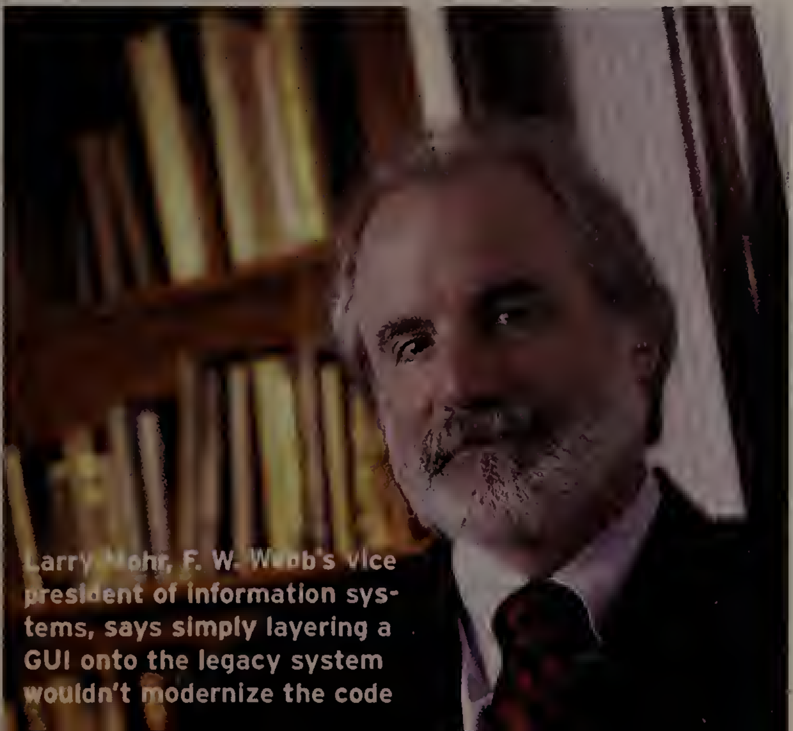
The new system generates bills twice as fast as the Unix system.

The former system, built on a Sybase, Inc. PowerBuilder platform, "was incredibly labor-intensive — it took an entire quarter to bill a [fiscal] quarter of invoices," said Heidi Bastel, assistant controller at Barclays, a wholly owned subsidiary of Barclays PLC, which has more than $500 billion in assets under management.

That's because staffers frequently had to pull data from the old Unix-based billing system and complete their calculations on an Excel spreadsheet,

Billing, page 56

Interface preserves business rules



Larry Mohr, F. W. Webb's vice president of information systems, says simply layering a GUI onto the legacy system wouldn't modernize the code

MARC ALACAREZ

By David Orenstein

STUCK IN a character-based world, F. W. Webb Co.'s workers wanted a friendly, graphical ordering and inventory system. But their IS management didn't want to lose the solid mainframe-based business rules, logic and data that had supported the company for more than a decade.

Both parties are about to get what they want.

To modernize the code without losing the legacy investment, Webb, a $250 million distributor of plumbing and

Interface, page 60

Billing

CONTINUED FROM PAGE 55

Bastel said. Barclays Global Investors manages pensions and other investments for government agencies and corporate clients.

In January 1997, Barclays hired Tenfold to build a more automated Unix-based billing system. Under a fixed-price/fixed-time agreement, Tenfold agreed to build the system in three and a half weeks for less than $1 million — half the time and cost of a competing vendor's bid and a fraction of the time it would have taken Barclays' information systems group to finish the project, Bastel said.

Tenfold was able to develop the system quickly because it already had templates from billing and invoicing systems it had built for other customers. Barclays' IS group would have taken at least a year to build the system on its own from the ground up, Bastel said.

Such delays aren't unusual because most internal IS departments are stretched thin as they try to juggle multiple development projects as well as day-to-day maintenance, said Sarwar Kashmeri, president of Niche Systems, Inc., a New York-based financial software systems consultant. Intense development demands "are why you see Wal-Mart and other companies increasingly standardizing on packaged software," Kashmeri added.

Company: Barclays Global Investors, San Francisco

Challenge: To replace a 13-year-old billing system that could process only 40% of its invoices without manual intervention

Results: Co-built a customized billing system that can process 700 quarterly invoices in six weeks – half the time it took before

As part of its agreement with Tenfold, Barclays helped build the system and allowed the vendor to market the software to other companies.

Faster throughput means Barclays has increased cash flow, Bastel said, though she wasn't able to quantify the gains. "I know it sounds crazy, but clients like to receive their invoices sooner," Bastel said, adding that many clients "like to pay [their bills] quickly." It also means accounts receivables aren't delayed.

Now that it is no longer overwhelmed with manually tweaking invoices, Barclays' four-person billing staff can devote more time to supporting accounts receivables and other functions.

The lighter workload seems to make Barclays' IS staff happy, Bastel said. "I don't have the staff turnover that I used to." ☐

Users wary of hard sell at vendor show

CONTINUED FROM PAGE 55

rather than the receivers" during discussions with other R/3 users, Hafer said.

Elf Atochem North America, Inc. now puts most of its conference time and money into working with the independent Americas' SAP Users' Group (ASUG), said Ben Vettese, director of SAP applications at the Philadelphia-based chemical company.

Chicago-based ASUG has about 800 corporate members and sponsors an annual conference as well as various regional and special interest group meetings. The ASUG events give "a more accurate picture of what's going on" with R/3 users, Vettese said. "Sapphire is really more of a marketing show."

But other R/3 users who went to Sapphire said there was useful information to be found amid all the selling and the raucous parties put on by SAP and the technology vendors and consulting firms that bask in its shadows.

"I can do without the rock concerts," said Mike Panesis, director of management information systems at Church & Dwight Co. in Princeton, N.J. But Panesis added that he was there "to meet other people who are going through the same things I am."

Church & Dwight, which makes Arm & Hammer baking soda, began using SAP's software in April to run finance and other corporate applications.

HONEST OPINIONS

Prospective R/3 user Wayne Parrish said Sapphire offered a chance to gather war stories and advice from a spectrum of customers who weren't screened by SAP beforehand.

"You can do site visits [with individual companies], but SAP can always handpick those users," said Parrish, a senior staff technical analyst at Gleason Corp. in Rochester, N.Y. Gleason, a manufacturer of gear-making equipment, is considering rolling out R/3 to about 1,100 users.

Even the parties can be worthwhile, said Joshua Greenbaum, an independent software analyst in Berkeley, Calif. Given the complexity of most R/3 projects, "it can be a reward to send your staff out to Sapphire for a night on the town." ☐

More rock, more talk at Sapphire '98

About 15,000 people — a mix of R/3 users, prospects, vendors, consultants and SAP AG employees — descended on Los Angeles two weeks ago for the Sapphire '98 conference. The following is a sampling of what they found:

■ Marketing here, there and everywhere. An R/3 consulting firm bought ads on the room key-cards at Los Angeles hotels. Bottled water with Sapphire labels was handed out. Cars and planes hauled Sapphire-related ads around and over downtown L.A.

And SAP covered the three minitowers of the Figueroa Hotel, next door to the L.A. convention center, with a "Welcome to Sapphire" mural featuring CEO Hasso Plattner and other top executives. Just one problem: The mural was painted before this month's surprise resignation of SAP America CEO Paul Wahl. At the last minute, sources said, SAP added sunglasses and extra hair to disguise Wahl.

■ Guerrilla warfare. Front-office applications vendor Trilogy Software, Inc., a big spender at last year's Sapphire, didn't pay for a booth in the exhibit hall this year. Instead, Trilogy rented a building just across Figueroa Street, plastered its name on the sides and set up its own little exhibit hall. To entice Sapphire attendees to cross the road, Trilogy came up with the ultimate giveaway: a Porsche Boxster for one lucky winner each day. About 3,000 people stopped by, according to a Trilogy spokeswoman.

■ There's no business like show business. Musicians ranging from Rod Stewart to Big Bad Voodoo Daddy were hired to entertain the Sapphire masses at parties. Even Plattner's keynote was bookended by lots of glitz. An 18-member dance troupe warmed up the crowd by running through "Singin' in the Rain" and other Hollywood favorites. And at the end, part of the University of Southern California marching band performed while firecrackers popped and confetti fell from the rafters.

■ Don't worry about us. Plattner brushed aside suggestions that SAP might be approaching Microsoft Corp.-like levels of clout, noting that it has only a minor presence in supply-chain planning, data warehousing and other new application areas. "Is SAP a threat? No, SAP is just a newcomer," Plattner said. One amused analyst later described SAP as "the 1,000-pound newcomer."

■ You're all talk. Maybe the keynote entertainment was just meant to keep people awake. Plattner acknowledged it would be tough to make it through his two-hour talk and a pair of one-hour speeches later in the day by other SAP executives whose first language also isn't English. "We have four hours of presentations, and if that's not enough, the speakers will all be German," he said. "Isn't that great?" — Craig Stedman

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Drug maker simplifies deals

CONTINUED FROM PAGE 55

million system, up and running since May, to save more than $500,000 annually.

Even more important is that the system increases Sanofi's ability to quickly execute more creative and complex contracts based on its own business goals.

"Under the old [mainframe-based] custom application, there were some really wacky contract terms we managed to implement, but it was at quite a cost to IS because of all of the custom [Cobol] programming it required," said Craig Ashinoff, information systems manager for sales marketing systems.

For example, if Sanofi wanted to tie a customer's discount to how well Sanofi's drugs sold compared with those of another manufacturer, reprogramming would be necessary.

Under the new packaged application, by contrast, contract administrators can quickly configure contracts based on more complex discounts by using a set of built-in tools that comes with the application.

"Tier discounts based on volume are simple, but they don't drive an objective to dominate in a certain category or get market share from a competitor," said Leigh Powell, a former pharmaceutical software consultant at Andersen Consulting and now vice president of marketing and strategy at the software maker System Consulting Corp.

But Claeys emphasized that such contracts don't drive inappropriate sales of a drug because all health care groups have a list, or formulary, of treatments for ailments, and doctors can choose the most appropriate.

"Once a product is accepted on the formulary, it can be there with other products that compete for the same patient or disease state," Claeys said. Where the new system comes in is that it enables Sanofi "to work with a customer to better position [our] products."

To implement the new application, Sanofi hired Edison, N.J.-based DMR Consulting Group, Inc., which launched the project by setting up a pilot system in a conference room at Sanofi's New York headquarters. That way, users could experiment with the software as it was being configured and suggest necessary changes before it was rolled out to contract administrators. Users could also make suggestions about usability and the layout of screens.

"We wanted to make it an attraction to users, rather than an administrative burden," said Kevin O'Rourke, chief information officer at DMR.

Working that way, the project team completed the implementation in six months. "The benefit of the conference room pilot [test] is that users can come in and administer a real contract on the system. We were also able to do work-arounds and modify the package at the same time," said Janet Rotchford, vice president of DMR's pharmaceutical business unit and manager on the Sanofi project. ☐

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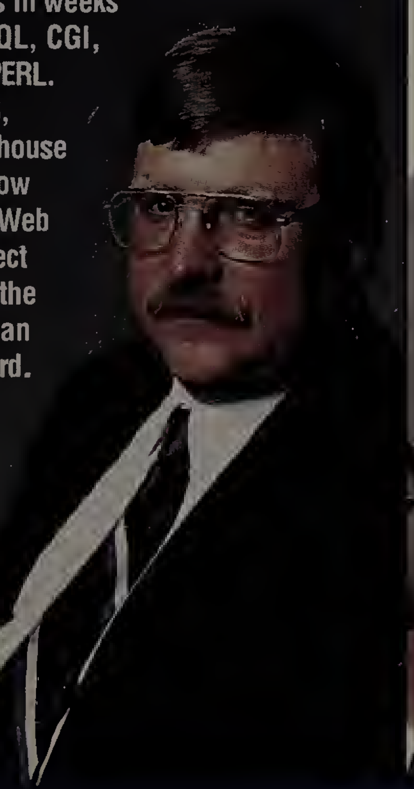
"We found WebFOCUS to be a fast, cost-effective solution for deploying our data warehouse on the Web."

Gary Fisher, Manager Strategic Systems, Sony Electronics Inc.

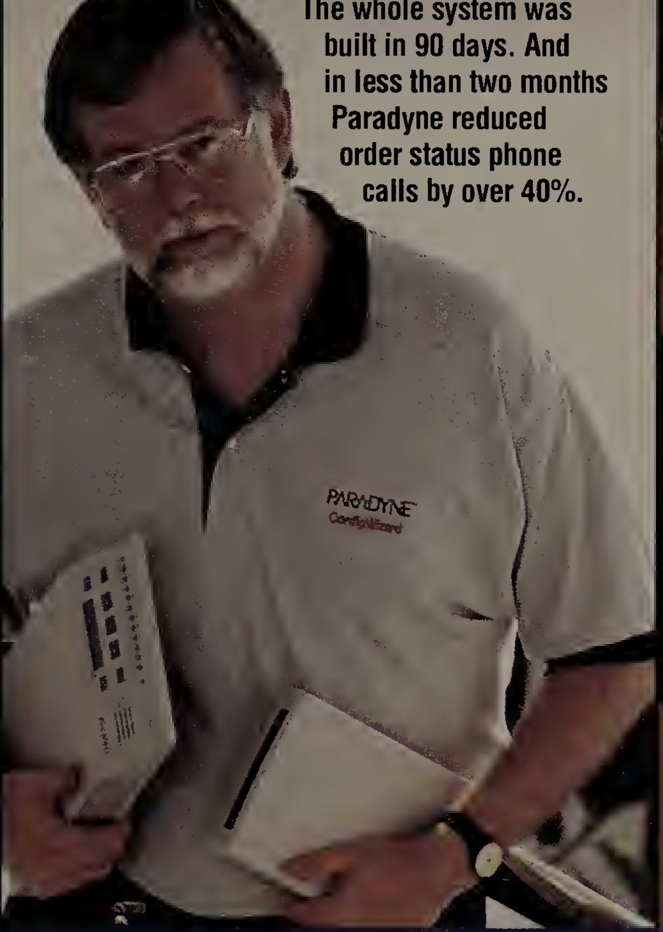
Sony Electronics Inc. decided to build a data warehouse to help manage and control its inventory. To make the information easily available to users in over 20 states throughout the U.S., the company wanted to build Web front ends for reporting and analysis. The company needed software that had report writing features, supported drill down, graphics and complex, multi-pass database queries. Sony looked at a variety of Web-based tools ranging from the very complex and expensive to the simplistic and inexpensive. The company installed WebFOCUS and had reports on their Intranet in days and drill down reporting systems in weeks without writing SQL, CGI, HTML, JAVA, or PERL. Using WebFOCUS, Sony's data warehouse developers can now quickly generate Web reports and connect users throughout the U.S. with a URL, an ID, and a password.



"In less than two months, we reduced order status calls by 40%, enhanced customer relations, and stimulated new business by driving customers to our Web site."

Dan Bond, Data Warehouse Manager, Paradyne Corporation

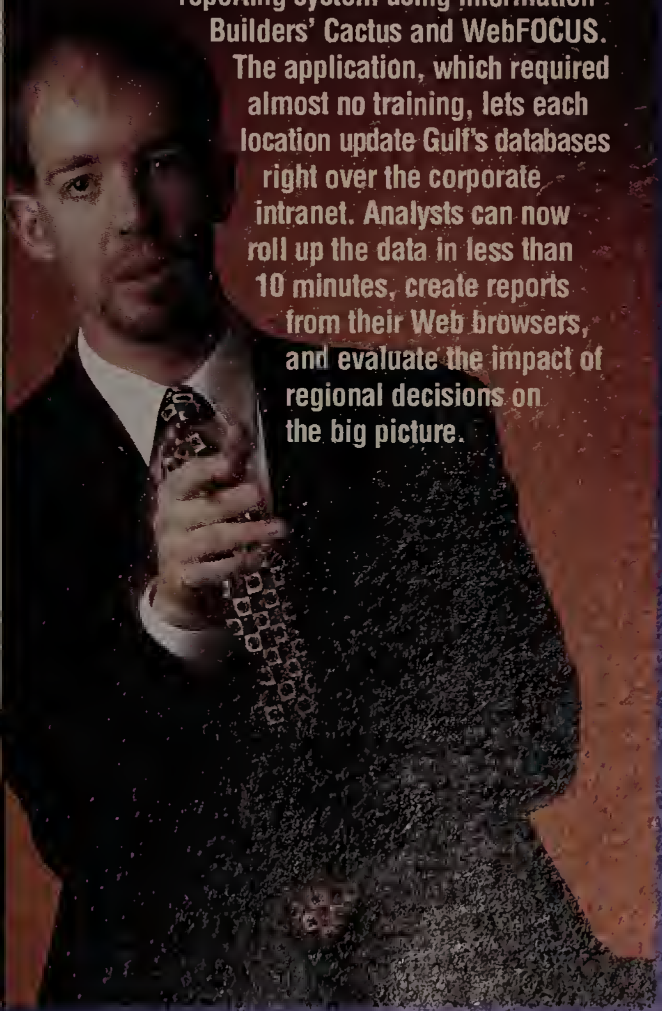
Using Information Builders EDA middleware and WebFOCUS reporting engine, Paradyne built a Web-based order status system that allows customers to launch dynamic queries against live mainframe data. The whole system was built in 90 days. And in less than two months Paradyne reduced order status phone calls by over 40%.



"With our new intranet-based decision support system we are able to roll up budget projections in less than 10 minutes."

Kevin Rasmussen, Expert Application Coordinator, Gulf Canada

In the oil and gas business, proactive monitoring of production and costs versus operating budgets is a mission-critical function. That's why Gulf decided it needed a faster way to collect and analyze this information from its field locations around the world. The solution... a Web-enabled data entry and reporting system using Information Builders' Cactus and WebFOCUS. The application, which required almost no training, lets each location update Gulf's databases right over the corporate intranet. Analysts can now roll up the data in less than 10 minutes, create reports from their Web browsers, and evaluate the impact of regional decisions on the big picture.



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Interface helps preserve business rules

CONTINUED FROM PAGE 55

heating products in Burlington, Mass., is going with a code conversion and reengineering system called Adapt Adaptive Development Framework (ADF) from ICentric Solutions, Inc. in Boston.

Legacy code conversions, in which applications are translated from an old procedural language on a mainframe platform into a modern object-oriented language on a client/server or intranet platform, are emerging as a viable choice for companies to update their older systems, analysts said.

Adapt lets developers not only build a Windows graphical user interface (GUI) on top of their legacy data, but also to convert part or all of the legacy code to Visual Basic to modernize the technology but preserve the business rules. Legacy code can be left alone on the server when it is appropriate.

"We have been in the character-based world for a number of years," said Larry Mohr, F. W. Webb's vice president of information systems. "For us, that works really well. The real guts of it, for me, is to get the right quantity at the right place at the right time. A GUI doesn't do that."

Mohr noted that simply layering a GUI onto the legacy system also wouldn't have modernized the code. He added that he wanted to make his code object-oriented and reusable. Because Webb has been beta-testing Adapt ADF, it was able to complete the project for less than $500,000, Mohr said.

Webb's highly customized Pick Basic applications had been served by a Data General Corp. Unix mainframe to character-based dumb terminals. This winter, after about 21 months of work, they will be revived as modern, component-based Visual Basic applications running on a wide-area network of PCs, Mohr said.

More than 600 salesmen, counter attendants and managers in 56 warehouses across New England now will have a Windows interface and access to World Wide Web browsers, E-mail and other applications. And Windows-to-Unix middleware will connect the PCs to the Data General server and the legacy Universe database that it hosts.

Nelson LeMay, an inside salesman at Webb's Nashua, N.H., warehouse, said the new system will act "like a hot knife through butter." Rather than having to recall one of 16 character codes for delivery options, users will merely need to click on the appropriate choice, LeMay said. Customers at the counter can view product pictures and data from electronic catalogs sent to Webb by manufacturers. Web access will let salespeople track down answers to customer questions.

Besides ICentric, vendors and consulting firms in the code conversion space include Relativity Technologies, Inc., International Integrators, Inc. and PKS Information Services, Inc., said Phil Costa, an analyst at Giga Information Group in Cambridge, Mass. "It's not a very large market. [But] you may begin to see a lot more people entering this market." □

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NEW PRODUCT

OPTISYSTEMS, INC. announced Opti-Trak performance management software for SAP AG'S R/3.

According to the Naples, Fla., company, the software has a data collection engine that runs as an R/3 "task." It identifies and analyzes likely causes of response time degradation and provides correlation details for R/3, database and operating system components.

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Briefs

Faster memory

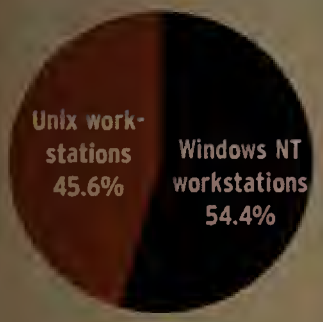
IBM has developed an 8M-bit memory chip that the company claims can deliver double the performance of existing ones. The chip, which can operate at a speed of up to 600 MHz, is targeted at high-performance workstation and server application environments, as well as high-speed buffers in network switches and router applications.

Web server AS/400

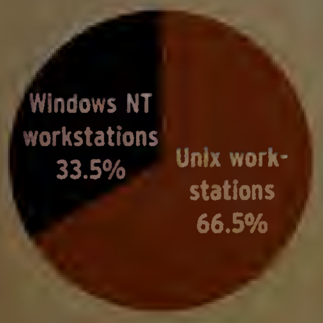
IBM has started shipping an AS/400E midrange server configuration bundled for World Wide Web server application environments. IBM's AS/400E Webserving Package features an AS/400 Model 170 with bundled software, including IBM's WebSphere Application Server for AS/400 and Client Access for Windows software. Options include IBM's Firewall software running on the AS/400's Integrated PC Server card and Internet services from IBM's Global Services unit. Prices start at $11,500.

WORKSTATION UPDATE

Worldwide market share in units shipped



Worldwide market share in total revenue



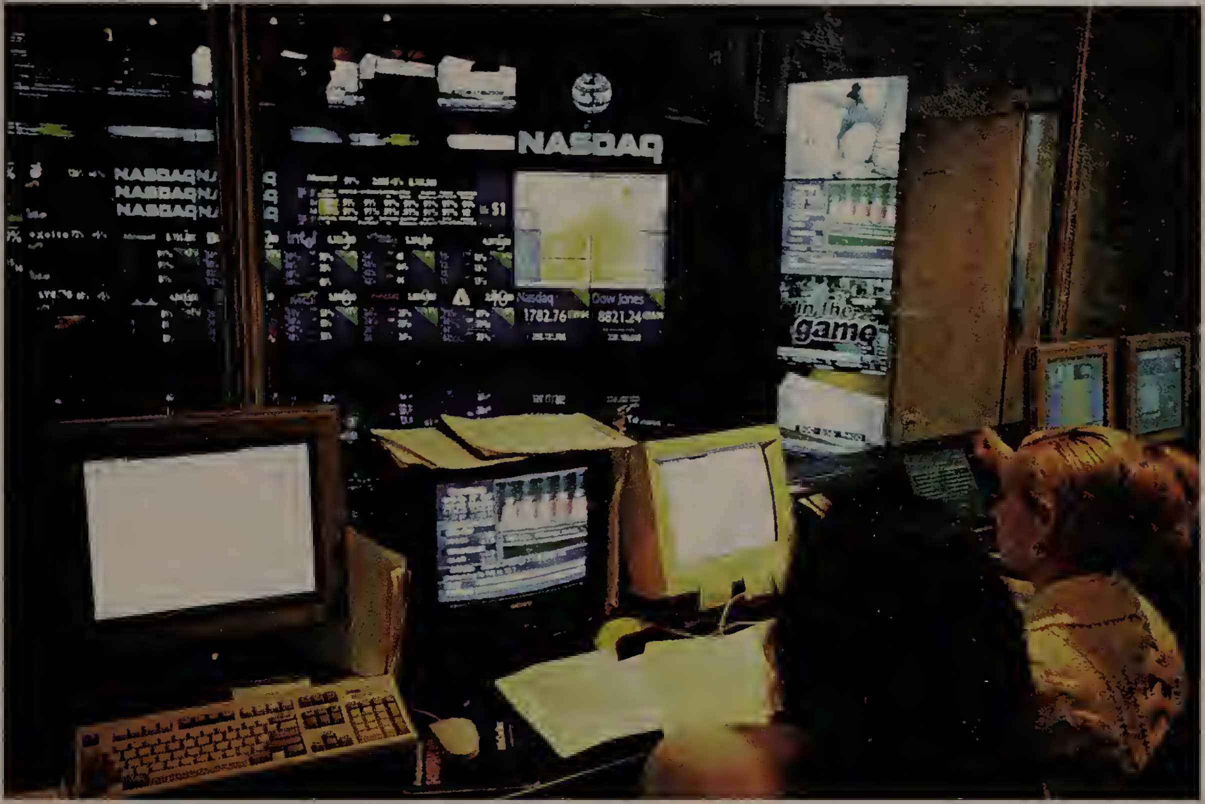
Base: Vendor shipping and sales data, second-quarter 1998

Source: Dataquest, San Jose, Calif.

Nasdaq gets bullish on NT

▸ *Intel hardware replaces Unix boxes*

By April Jacobs



STEVE BORNS

The Nasdaq trading floor uses NT servers instead of Unix for many of its systems because the exchange saw NT as easily scalable. It is a decision that has paid off

IF THERE WERE any doubts that Windows NT-based servers can cut the mustard compared with Unix-based workstations, Nasdaq Stock Market, Inc. may have provided the proof that they can.

Since investing two years ago in two emerging technologies — NT hardware instead of Unix, and the Internet — Nasdaq has accommodated growing interest in its World Wide Web site to the tune of 13 million hits per day. And it has moved all of its corporate users to NT-based workstations.

RIGHT MOVE

"It was a decision we made over two and a half years ago when [NT didn't support] sites as big as we were getting," said John Delta, director of advanced technologies at New York-based Nasdaq. "We made a strategic decision that paid off."

Delta said Nasdaq chose NT even though it wasn't considered an enterprise server by many at the time, because Nasdaq saw it as easily scalable. That proved true, he said, so the company decided on the platform for other systems as well. The company also easily found experts to help with NT-based development and support.

"The Web site helped bolster confidence greatly when the technology group saw what it could do," Delta said.

The site, managed by a staff of about 15 people, is based on 20 Intel/Windows NT servers from Dell Computer Corp. in Round Rock, Texas.

The goal of the Web site was to provide real-time information on Nasdaq companies to brokers and investors. The company has spent "tens of millions" of dollars on the site, Delta said.

One company that trades on the exchange had positive words for the site. "It's hard to quantify it, but we have had an increase in requests for our annual report, and we know it makes it easier for investors to get information on press releases and analyses," said Joe Garrity, chief financial officer at 4Kids Entertainment, Inc. in New York.

Garrity said he also uses the online service to track the company's performance after it sends out press releases or in response to market events. ☐

Intel aims chips at Unix arena

By April Jacobs

INTEL CORP. is making a strong play in its attempt to push its chip architectures into the Unix market, traditionally ruled by RISC-based system vendors, with a framework for a unified device interface due out next year.

Users said they see both good and bad in the move. They said they would like to see more in common among the different flavors of Unix but they fear standardization could prevent the kinds of optimizations Unix system vendors now make in their operating systems for individual peripherals and system components.

"Once the toothpaste is out of the tube, you can't get it back in," said Brian Brumit, a director at New York-based Coopers & Lybrand LLP, one of the Big Six accounting firms.

Intel, page 66

Fujitsu releases business notebooks

▸ *LifeBook series targeted at mobile workers*

By Nancy Weil

Fujitsu PC Corp. has released a line of LifeBook notebook computers, including two series aimed at business users.

The computers feature Pentium II processors and cost from $1,999 to $3,699.

The LifeBook E Series, designed for midsize businesses, has four models with a 233-, 266- or 300-MHz processor, offering either a 12.1- or a 13.3-in. display, 32M bytes of memory and 3.2G to 5G bytes of disk space. The models range in price from $1,999 to $3,299.

The L Series has two models, each with a 266-MHz chip, 13.3-in. display, 32M bytes of memory and a 4G-byte disk drive with a detachable bay to support a floppy disk, CD-ROM or optional digital video disc drive or an external floppy disk drive.

Designed for mobile workers, the L Series models cost $3,699 for the detachable bay version or $3,399 for the external floppy disk drive model.

Fujitsu also released the LifeBook C Series, which has a 233- or 266-MHz processor, a 12.1- or a 13-in. display, 32M bytes of memory and a 3.2G- or 4G-byte disk drive. The models cost $1,499.

Weil writes for the IDG News Service, a sister company to Computerworld, *in Boston.*

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Intel aims chips at Unix

CONTINUED FROM PAGE 63

"While it's in Intel's interests to put greater pressure on the Unix chip sets [using a standard that may give advantage to Intel's own chip sets] — and I don't fault them for doing it — other people have already put together best-of-breed solutions," Brumit said.

Intel officials said a uniform device interface would let the Unix flavors retain their strengths but would make it easier for hardware developers to make peripherals without having to modify drivers for each Unix flavor.

On board with the project are hardware PC vendors Compaq Computer Corp. in Houston and Dell Computer Corp. in Round Rock, Texas, and several Unix system vendors, including Compaq, IBM and Hewlett-Packard Co.

Intel expects to provide a framework and reference specification in the first quarter of next year, including tools for the freeware Linux version of Unix.

To adopt the uniform framework for drivers, Unix system makers would have to alter their operating systems. But Intel officials said that would eliminate the need to develop duplicate drivers for different Unix flavors.

Some users said the standard also could ease their worries about supporting, maintaining and developing for the systems they already have in place.

"If there were a standard, it would be a lot easier for software development, and then I don't have to worry as much about the expertise of someone when they come in to do a job," said Larry Garden, director of technical services at Brewers Retail, Inc. in Mississauga, Ontario. □

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NEW PRODUCTS

PANASONIC PERSONAL COMPUTER CO. has announced the Toughbook 27, a rugged notebook computer with a body made from magnesium alloy rather than plastic.

According to the Secaucus, N.J., company, the notebook was designed to withstand a 3-foot drop. It has an Intel Corp. 266-MHz Pentium processor, 512K bytes of cache and 32M bytes of memory. The keyboard, touch pad and LCD panel are water-resistant.

Prices range from $3,999 to $4,999.

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TANDBERG DATA, INC. has announced the SLR6, a 26G-byte (compressed) tape-storage product designed for network, workstation and midrange backup.

According to the Simi Valley, Calif., company, the new drive has a Fast Wide SCSI-2 interface and a transfer rate of 8.6G byte/hour. It is backward compatible down to the 2.5G-byte SLR4 drive.

The SLR6 costs $1,221 for an internal drive and $1,353 for an external drive.

Tandberg Data
(805) 579-1000
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GIGANET, INC. has announced the GNX5000, an interconnect switch for Windows NT server clustering.

According to the Concord, Mass., company, the LAN switch is an eight-port, rack-mountable unit with 1.25G bit/sec. full-duplex bandwidth on each port. It includes native support for the Virtual Interface Architecture clustering standard and was designed to support clusters ranging from two to hundreds of nodes.

The GNX5000 switch costs $6,250, and its host adapter costs $795.

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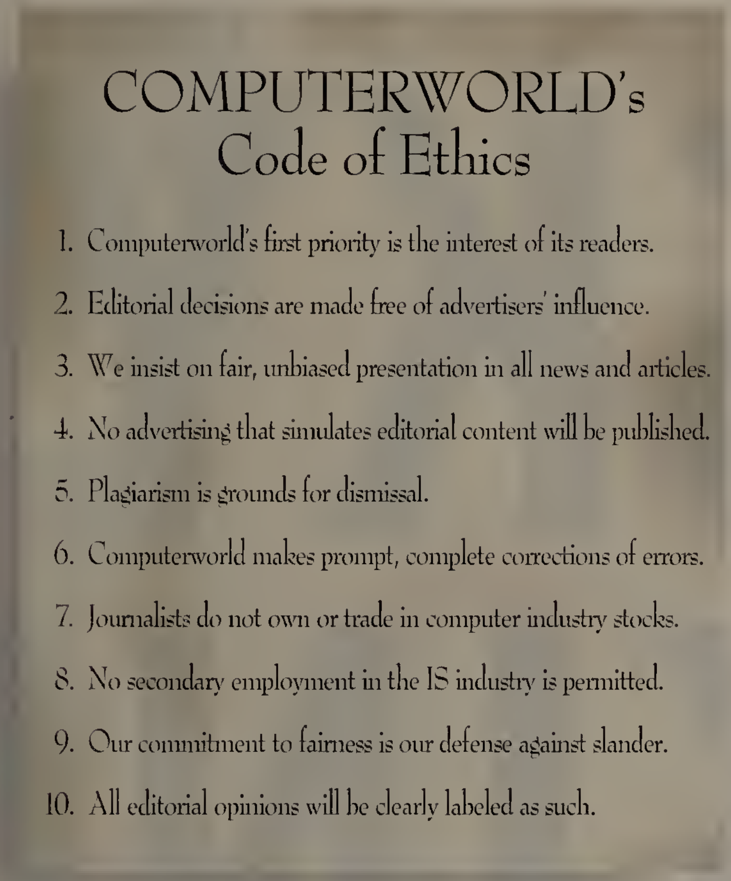

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BEETLEMANIA

The IT overhaul behind VW's Beetle comeback

Why is Jack Welch smiling?

The chairman and CEO of General Electric Co. is confident that GE's quality improvement campaign will add billions to the company's bottom line. He also has confidence in the abilities of the point men leading the campaign: CIO Gary Reiner.

Managing, page 64

Online ticket sales jump; outlook good

The VW Mexico factory produces two Beetles a minute, 16 hours a day, six days a week

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SKY KING

DOWN-TO-EARTH TECHNOLOGY HELPS MAKE HERB KELLEHER'S SOUTHWEST AIRLINES A SOARING SUCCESS

BY KATHLEEN MELYMUKA

When a Northwest Airlines ad once used selective statistics to claim it was No. 1 in customer satisfaction, Herb Kelleher responded with his own ad: "Liar, liar. Pants on fire."

To deliver his annual message to employees in 1996, the company's 25th anniversary, Kelleher was escorted to the stage in a straitjacket to celebrate the day's theme: "Still Nuts After All These Years."

Kelleher, the Harley-Davidson-riding, Elvis-impersonating, chain-smoking chairman, president and CEO of Southwest Airlines Co. (SWA), greets employees with a signature bear hug — and is as likely to be found tossing luggage with the baggage handlers or having a beer with an off-hours flight crew as he is to be in his office.

Peculiar? Perhaps. But it works for Kelleher, and what works for Kelleher works for SWA.

He *is* the airline's corporate culture: commonsensical, down-to-earth and pragmatic, with an underpinning of zaniness and a constant focus on customer service. And it's hard to argue with the results: His $3.8 billion, Dallas-based airline is the only major U.S. carrier to have turned a profit every year since 1973.

Kelleher's maverick attitude applies to information technology as well. "We've been pragmatic in our approach," he says, "because I've seen many companies feel inadequate and then [technology became] their Viagra. But when they looked at the cost [and] results, they cut way back. So I told our people, 'We're not going through the Viagra phase.' "

The lesson has stuck. "Most systems people want more systems," Kelleher says. "But our systems people will say to me, 'Herb, why should we automate this? A human being can do this twice as fast, and the results will be just as good.' "

KELLEHER ON AMBITION

"I've always felt that a human being is capable of much greater things, passing much greater tests of will, endurance and accomplishment than we usually subject ourselves to."

But when the desired results require technology, SWA can move with speed and boldness. Its biggest technical innovation, "ticketless travel," was a direct response to one of many challenges to its existence. In 1994, United Air Lines, Continental Airlines, Inc. and Delta Air Lines, Inc. ejected SWA from their reservations systems because they were inaugurating competing short-run services. That meant travel agents could no longer automatically generate SWA tickets and would have to write them by hand, a potentially fatal disadvantage. "So we cobbled together 'ticketless' in a very short time," Kelleher recalls.

In fact, unknown to Kelleher, an entrepreneurial team of technical and business staffers had begun planning ticketless reservations as soon as the problem arose. By the time he announced his intention to go ticketless, the work was already in progress. Within four months, the team had revolutionized air travel by creating ticketless reservations, which allow customers to deal directly with SWA, get a confirmation number and simply show up at the airport. "We were really forced into it," Kelleher says. "It grew out of necessity, and our people did a fabulous job. All of a sudden, the whole United States airline industry had to go ticketless because people liked it so much."

The ability to move fast in an emergency is a cornerstone of SWA's success.

"I tell our people to try to preserve that entrepreneurial quickness and alertness," Kelleher says. The ticketless initiative demonstrates the extent to which the airline's employees have internalized his philosophy and style.

A key to SWA's quick turnaround on that project was the company's innate simplicity, Kelleher says. "It was easy for us to do because of the simplicity of our system as a point-to-point carrier and the simplicity of our fare structure," he explains.

Next to pragmatism, simplicity is the operative word at SWA. For example, the airline has always operat-

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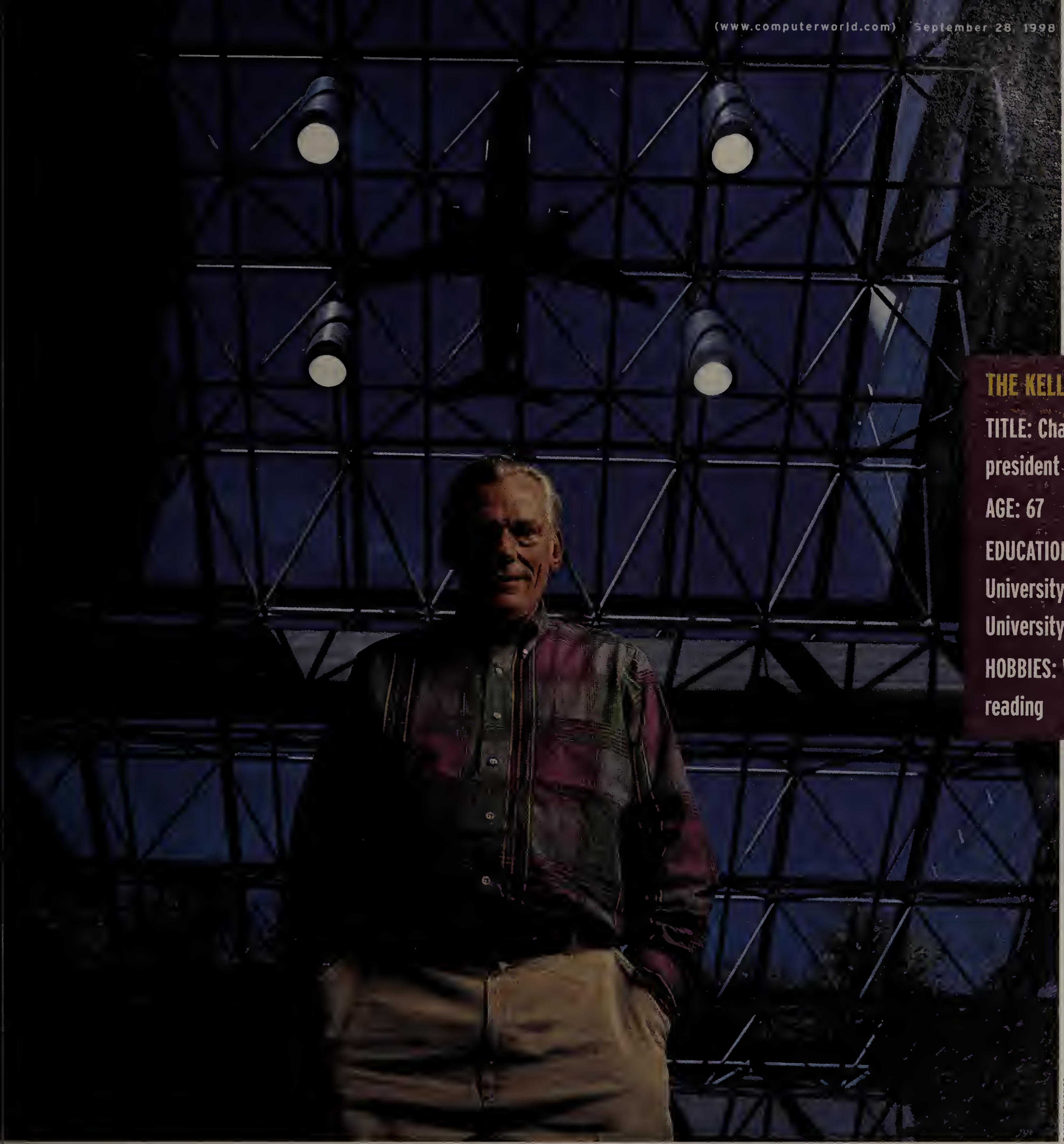


DANNY TURNER

THE KELLEHER FILE

TITLE: Chairman, president and CEO

AGE: 67

EDUCATION: Wesleyan University; New York University Law School

HOBBIES: Work and reading

ed only one type of plane — the Boeing 737. That simplifies training, reduces parts inventory and gives the company added leverage with The Boeing Co.

The same goes for systems. The IT group has grown from 50 to 300 in four years, and Ross Holman, vice president of systems, wants to simplify and standardize hardware and software to get the same benefits SWA gets from its standard, one-plane-model fleet. He's moving toward a comprehensive Novell, Inc. NetWare network running Microsoft Corp.'s Windows NT and Windows-based software on a Hewlett-Packard Co. hardware platform. In other organizations, standardizing systems is a battle, he says, "but here, it just fits right into the way we do things."

CULTURAL ICON

Kelleher, described by leadership and management author Tom Peters as perhaps the best CEO in America, has been at Southwest from the beginning, first as an often unpaid corporate counsel, then as chairman in 1978 and, finally, CEO and president in 1981. He plays many roles for Southwest's 25,000 employees: coach, quarterback, cheerleader, sage, father figure, huggy bear, entertainer, friend and legend.

He's also an IT guinea pig. "I'm the Aunt Maude of Southwest Airlines," he acknowledges. "You know how they used to say technology should be simple enough for your Aunt Maude? Well, when systems wants to try something out, they call me. They say, 'If Herb can do it, anyone can.' "

Kelleher says he likes technology that's simple and to the point. An avid reader, he was bowled over when his son introduced him to online bookseller Amazon.com, Inc. "I may just vanish into the world of the ether now that I've seen this marvelous thing," he says.

That isn't likely. He's too wrapped up in people to disappear. "He knows everybody," a mail room worker says.

For Kelleher, people are what it's all about. "I think leadership is valuing the time you spend with your people more than anything else that you do," says the CEO, just back from a fishing trip with some of his pilots.

EARNING KUDOS

With Kelleher at the helm, SWA has captured its share of kudos. Last year, *Fortune* magazine named it the country's most admired airline, and this year, the best place to work in the U.S. When his people won the federal government's "Triple Crown" for best baggage handling, best on-time performance and fewest cus-

Sky King, page 70

SKY KING

CONTINUED FROM PAGE 69

tomer complaints of any major airline for the fifth consecutive year, Kelleher rewarded them by establishing an ultracasual dress standard — shorts and T-shirts — and commissioning a special plane decorated with the signatures of every one of his employees.

SWA also has made its mark in IT. In addition to the ticketless program, which won a *Computerworld*/Smithsonian Award for outstanding use of technology, Southwest has led the way in Internet-based booking, and its NewRes system, now in development, will be the first completely new airline reservation system in decades.

All that from a company Kelleher described in 1994 as "high-touch, low-tech."

"There was a reason for that," he says. "This world is changing so rapidly that I don't want to make a huge investment in something that's going to be outmoded a year from now. I said, 'Let others take the risk,' and when we think the time is appropriate, we'll get into it in a big way. So I created that lag personally and intentionally."

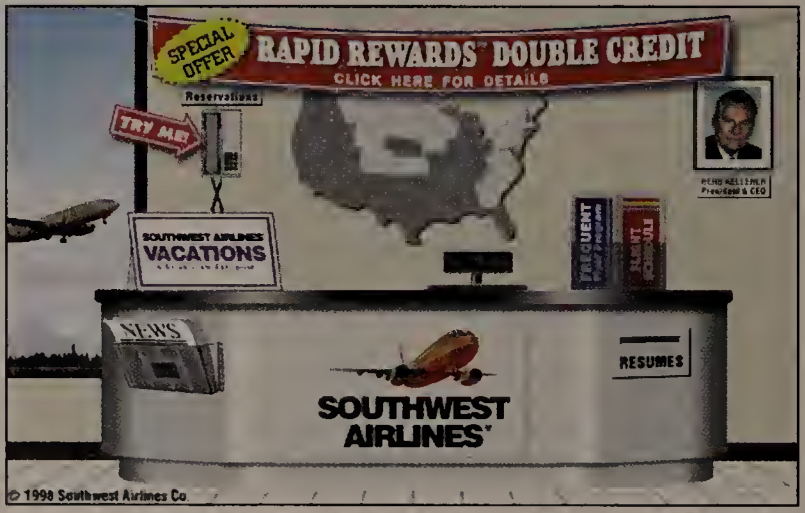
KELLEHER ON HEROES

"World War II was not pretty, but it did offer you gigantic figures striding the globe: George Patton, Winston Churchill, Franklin D. Roosevelt, Jimmy Doolittle. . . . You don't have heroes like that today."

AN EYE ON RESULTS

Kelleher is oriented toward results, not process. When he became CEO, the first thing that caught his eye was the systems department, which had an orientation that was seemingly the opposite of Kelleher's. "There were no programs or applications coming out," he recalls. "Just constant demands for more people and more machines."

Kelleher moved systems from finance into a new corporate services department and worked with Executive Vice President John Denison to develop an internal customer-service mentality to match SWA's famous external customer focus. Today, "we're a hybrid," Holman says. "We're a separate group, but in many cases, we are co-located with internal customers."



Southwest Airlines' Web site starts with a homey feel

Part of the information systems transformation involved making systems think in business terms. "In those days, they'd never build a business case for any application," Kelleher recalls. "All I'd get was a piece of paper that said, 'If we create this program, we'll be able to do a lot of things more efficiently.' Well, you can do bad things efficiently!"

Today, joint steering committees identify and prioritize technology projects based on the business merits. Kelleher generally keeps his hands off the process. "It's much too labyrinthian and complex a process to go through," he says mischievously, "but I have seen them taking claw hammers into their meetings."

Personally, Kelleher has kept most technology at arm's length ever since he was unable to charm his newly installed office PC. "I found out I was on node 49 of the network," he says. "So I went down to visit it, and I talked to it and tried to establish a personal relationship. Then I came back up here [to his office] and tried to log on and I got a message: 'Unauthorized intruder.' "

But his Aunt Maude approach to technology doesn't color his approach to technologists. "His focus and dedication to people is unsurpassable," Holman says. And IS returns that in spades. People still talk about the time the company needed to buy 800 PCs for a new reservations center. Instead, the IS group voluntarily organized an assembly line of employees who built the PCs with parts bought from wholesalers, saving the company $1 million.

What comes off the assembly line at SWA's systems today is a reflection of Kelleher's pragmatic approach to technology, combined with his passion for customer service. "Our technology is very mainstream," Holman explains. "Sometimes we're on the leading edge of what we're trying to do with it, like our ticketless system, but the technology itself is proven."

GETTING RESULTS

At SWA, technology is always a means, never an end. "What I always try to ask our people is, 'What results are you trying to achieve?' " Kelleher says.

Recent results have included SWIFT, a state-of-the-art, integrated dispatching, flight-planning, plane- and weather-tracking system that monitors a flight from beginning to end. "Before, we used flow sheets all taped together with planes drawn on them," one employee says. "When a plane moved, we had to erase it."

"It is truly spectacular," Kelleher says of the SWIFT system, though he acknowledges that it's one area where he held IT back too long. "Frankly, I wish we'd started that a couple years before we did. I think we lagged a little more than we should've there," he says.

But in other technologies, SWA has been way out in front. Its award-winning World Wide Web site (*www.southwest.com*) was the first in the airline industry. And unlike the strictly business airline sites that have come after it, SWA's home page (above) is actually homey. "It was done all inside by our own people," Kelleher says proudly. "No consultants whatsoever. And everybody loves that Web page."

The site's development exemplifies how Kelleher works with his people. "He sets the blueprint and clears the decks and makes room for Kevin [Krone's IT marketing group] to let this explode," says Joyce Rogge, vice president of marketing. "But we don't sit around waiting for Herb to tell us what to do. He hires good people and gives them the freedom to do their job."

MOREONLINE

For an audio version of parts of Kathleen Melymuka's interview with Herb Kelleher, visit *Computerworld online.*

www.computerworld.com/more

"I give them a tremendous amount of latitude once they get started," Kelleher agrees, "but you have to keep your eye on things, and when there is a problem, I make myself totally available for as long as it takes to get that problem solved. I think we've created an atmosphere where they're free to invent."

Among the newest innovations is NewRes, a "from scratch" reservation system now in development. The old system was purchased from American Airlines and runs on Sabre, American's computerized reservation system. NewRes will free SWA from reliance on other host systems and will be customized to its unique pricing, marketing, seating and booking methods.

KELLEHER ON WORK

"I work most of the time. I enjoy what I do. My vocation is my avocation. If you enjoy what you do there's no stress connected to it. Every day is a pleasure."

Despite his successes, even Kelleher has seen a couple of systems crash and burn, for human rather than technological reasons. A system called One Stop, for example, was an automated boarding-pass distributor SWA deployed in airports with the intention of speeding customers to the gate. "I thought, 'Boy, we are so smart!' " Kelleher recalls.

But customers hated it. Kelleher huddled with his people. When some implied that customers just weren't smart enough to appreciate the system, he would have none of it. "The answer I gave them was, 'I don't care why they don't like it; they hate it. So stop it.' "

MANAGING SUCCESS

Keeping the entrepreneurial spirit alive as SWA grows is one of Kelleher's chief challenges. "We're very leery of success," he says. "I told our people that when we look at the biggest risks of this decade, No. 1 is us. Think small and act small, and we'll get bigger. Think big and act big, and we'll get smaller.

"As you get bigger, you don't have to turn into a bureaucracy," he says, "but you've got to fight it all the time." One of Kelleher's main weapons has been humor. When an America West Airlines, Inc. TV commercial claimed that people were embarrassed to fly SWA, he parried by appearing in a commercial with a bag over his head and offering free bags to embarrassed flyers.

Kelleher says he would like to see SWA age as well as he has. "I've gotten older, but I'm still immature, and may I always remain the same," he says. "Maturity can make life terribly boring." ☐

Melymuka is Computerworld*'s senior editor, management.*

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JIM CHAMPY

POTENTIAL OF IT STILL ELUDES MANAGERS

For quite a while now, I've been harboring a dark thought: IT may actually be making managers less efficient and more ineffective.

Don't misunderstand. I'm not joining Dilbert's chorus that managers are incompetent. Rather, I'm observing that IT is still far from delivering on its promise to improve the process of management decision-making.

So far, cheap computing, communications devices, networks and E-mail have simply accelerated decisions about the mundane: "Yes, I'll be at the meeting tomorrow"; "Charge this customer Y, not X"; "Add this person to the team"; and "Move that person to another department."

But I'm beginning to suspect that IT may be slowing down important — what is sometimes called "strategic" — decision-making and even pointing managers in the wrong direction.

How? First, the amount of data and information that managers must now sort through is becoming more and more overwhelming. Ironically, E-mail and voice mail are vastly more "efficient" than memos and pink phone slips in overloading managers' intellectual bandwidth. Moreover, these technologies create a sense of immediacy that's given rise to the expression, "The urgent is forcing out the important."

Worse, technology today makes us accessible to just about everyone. In one respect, it's a virtue. We certainly hear and see more. But we also are forced to electronically suffer the fools, cranks and E-mail "strings" that stridently call for our attention.

Yes, there are ways for technology to sort and prioritize what information we receive, but managers must now rethink not just what information they need, but also to whom they are going to listen.

Niccolo Machiavelli advised his Prince to choose "certain discreet men from among his subjects, and them alone free leave to speak their mind on any matter on which he asks their opinion, and none other." Somehow, the information systems that support the work of managers must now be designed to provide for some selectivity in wisdom.

But the second problem with how IT supports managers may be more difficult to solve. Management expert Peter Drucker saw it a long time ago. Most management information systems are still built on accounting data. They tend to be inwardly focused. If led by these systems, managers will continue to be consumed with what they already know a lot about: costs. They won't focus much on what they find more difficult: the creation of value. If, like me, you believe Drucker's assertion that business is the "creation of value and wealth," IT today isn't helping managers very much in really building the business.

Drucker's related belief is that IS must provide managers with more pertinent external data. That's more easily said than done. There are certainly technology-based efforts to capture market and customer data and to make sense of it. But the information that's created doesn't seem to be helping executives make the tough decisions.

If IT were to really improve the work of managers, technology would do the following, among other things:

▸ **Give managers enough information about market conditions so they have the courage to act.** It's very difficult in some industries — health care, for example — to discern the future. But if a manager in that industry were to really know what's happening — trends, medical technologies, treatments, outcomes, consolidations and demographics — it might be a little easier to decide what to do.

▸ **Help manage integrated operations.** Managers increasingly have to know what's happening between departments and functions, both inside the company and outside. How long is it taking to get a new product to market? Where are the breakdowns in the flows of information, materials and money through the organization? And how are our external partners — suppliers, outsourcers — performing their work? Most performance reports that managers now get are by function or business unit. Not much is there to help them see what's going on in between.

▸ **Give managers a sense of how people are really doing.** Attitude surveys happen too infrequently, if at all. The only aggregated report many managers see are attrition rates — damage reports that come too late. Managers need to know what people are going through and experiencing if they want to be effective leaders. How about taking their pulses in real time?

Ideally, IT should grow to act like the "wise counselors" who advised Machiavelli's Prince. Management has a related responsibility to be, as Machiavelli put it, "a patient hearer of the truth, and even displeased when [it] should perceive that anyone, from whatever motive, keeps it back." ☐

Champy is chairman of consulting at Perot Systems Corp. in Cambridge, Mass. His Internet address is JimChampy@ps.net. His newspaper columns are syndicated by Tribune Media Services.

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f.y.i.

Beware of E-commerce's legal pitfalls

The road to electronic commerce is full of legal potholes, says Sam Byassee, an attorney at Smith Helms Mulliss and Moore in Raleigh, N.C., and the legal issues will vary depending on what you want the World Wide Web site to do.

If your site is selling goods and services, you need to think about long-distance product liability, because a person in Alaska who uses your product may try to sue under Alaska law. Travel costs and the need to deal with differences in state laws could make such a case unusually expensive, Byassee says.

If your site publishes information, you could run afoul of copyright and other publishing law. And if you let people post comments, you could be held responsible for defamation, libel or obscenity offenses.

Case law on that is still developing, Byassee says, but so far, the more a site tries to screen outside materials, the greater its liability risk, because the courts see it as a publisher rather than merely a distributor.

Currently, businesses in different regions can share a trademark name because there is little chance of confusion. But when they go on the Web, the first to use the trademark will usually get the rights to it, Byassee says. The other is out of luck.

And make sure you own your site. If you go to an outside designer for Web development and you don't specifically demand copyrights in the contract, the designer, not your company, owns the files and can refuse permission to modify them or move them to another server. "The law is that the developer in an independent contractor situation continues to own the copyright, and the company that paid for it only has a license to use it," Byassee explains. "I've seen it happen a number of times, and it surprises people and really makes them mad."

To avoid legal traps, it's best to involve your attorney as soon as you start to consider a Web site, Byassee says. That can save you from having to make expensive changes later.

— Kathleen Melymuka

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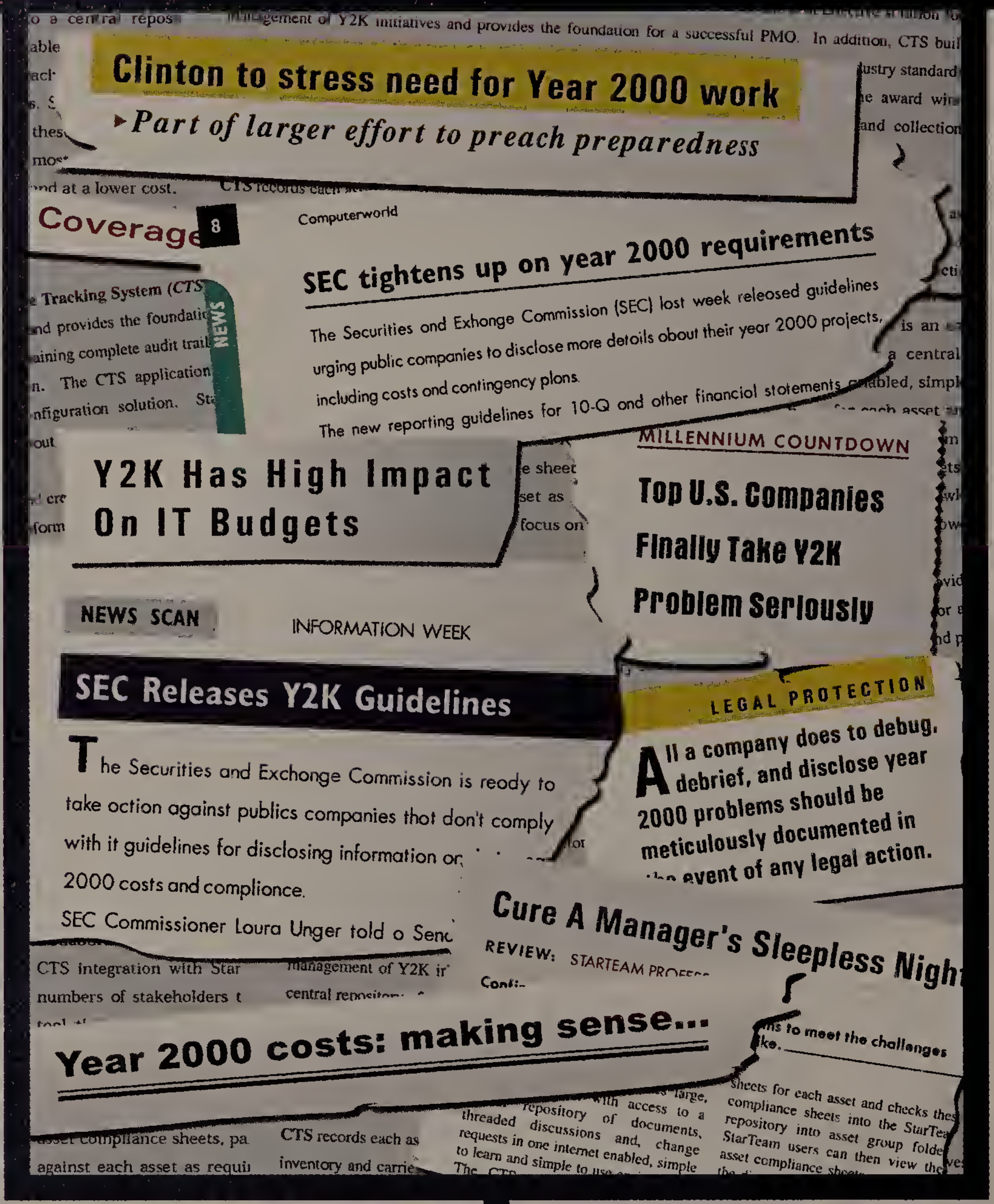

Clinton to stress need for Year 2000 work

▸Part of larger effort to preach preparedness

Coverage 8

Computerworld

SEC tightens up on year 2000 requirements

The Securities and Exchange Commission (SEC) last week released guidelines urging public companies to disclose more details about their year 2000 projects, including costs and contingency plans.

The new reporting guidelines for 10-Q and other financial statements

MILLENNIUM COUNTDOWN

Top U.S. Companies Finally Take Y2K Problem Seriously

Y2K Has High Impact On IT Budgets

NEWS SCAN

INFORMATION WEEK

SEC Releases Y2K Guidelines

The Securities and Exchange Commission is ready to take action against publics companies that don't comply with it guidelines for disclosing information on 2000 costs and compliance.

SEC Commissioner Laura Unger told a Sen

LEGAL PROTECTION

All a company does to debug, debrief, and disclose year 2000 problems should be meticulously documented in the event of any legal action.

Cure A Manager's Sleepless Nigh

REVIEW: STARTEAM PROFE

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Review Center

Survey: Year 2000 surprises

Spinning gold *from* flax

Year 2000 projects have led to leaner, cleaner systems and a new focus on testing. But unexpected costs and heavy workloads still plague IS organizations, according to a *Computerworld* survey

By Kevin Burden

After spending the past two-plus years fixing your company's year 2000 problem, you know there had better be more return for the effort than just the status quo when the clocks roll over, right?

Compliance teams say they are seeing unexpected benefits that reach beyond the basic need to keep systems running in 2000. They cite the bonuses of up-to-date inventories and system replacements. Even the groundwork to change how data is stored gives teams something additional to show for their efforts. Yet not all year 2000 surprises were positive, according to interviews with 20 corporate and government compliance teams. Hidden costs that jumped out of forgotten systems or that resulted from underestimating the job's scope appeared to be common to everyone at some level. For example, many budgets didn't account for the systems that run buildings and telephone systems. Others misjudged either the tremendous expense required to set up a separate test environment or didn't realize that testing could take up 50% of their time.

Year 2000 surprises, page 76

Year 2000 surprises

CONTINUED FROM PAGE 75

Advice

We need to realize that problems will persist well into the year 2000. Don't assume you're done once 01/01/00 hits. Also, don't take anything for granted. If someone says they have completed their fix, ask them how they know and get proof.

VAL ASBEDIAN, director of strategic planning
Commonwealth of Massachusetts
Boston

View Y2K as a business issue, not simply an IT issue. Establish partnerships between the business and IT sides so that they work together against Y2K, not against each other.

JOE BENNICI and JOHN WHALEN, Y2K project team managers (business and IT)
ITT Hartford Life Cos.
Hartford, Conn.

Don't think that you have to wait until Jan. 1, 2000, to invoke your contingency plan. If you wait that long, you could be doing so much triage you may not have the resources to enact the plan.

SCOTT CULBERTSON, senior technical staff member
Capital Blue Cross
Harrisburg, Pa.

Consider the cost to repair vs. the cost to replace. Sometimes it's easier and cheaper just to replace everything. (Hyundai Precision America replaced its existing systems with SAP on 12 servers at a cost of $2 million.)

JOE PRESKI, director of MIS and chief information officer
Hyundai Precision America
San Diego

Find a way to keep everyone, particularly management, motivated about this problem. We actually issued report cards on how each state agency is doing. This acted as a stimulus for upper management to reinforce and reinvigorate their efforts.

CHARLES GERHARDS, director of technology center
Commonwealth of Pennsylvania
Harrisburg, Pa.

Research the Internet for tips, procedures and steps to follow as much as you can. We found a number of World Wide Web sites from other states with testing models that have been useful to us in evaluating our own procedures.

JACK W. LONGWORTH, CIO
Department of Education
State of New Jersey
Trenton, N.J.

Computerworld set out to identify the year 2000 surprises and snags by commissioning Market Data Group in Framingham, Mass., to conduct a series of in-depth interviews with year 2000 project managers and information technology managers.

However, no surprise sparked as much emotion among managers as the lack of vendor cooperation. Hardware, software and networking vendors are described as having contracted serious cases of lockjaw when providing information about their year 2000 compliance, thus leaving it to compliance teams to dig into systems they didn't expect to work on because they expected vendors to ensure compliance. When we asked if they could name a vendor they felt was doing exceptionally well at keeping its users informed, 18 of the 20 companies couldn't.

As a reality check, Computerworld Information Management Group followed up the interviews with a survey of 104 companies, which ultimately gave vendors a bit more credit. Vendors generally received positive grades for their responsiveness to information requests: On a scale of 1 to 5, where 5 is very responsive, nearly three quarters of the users surveyed gave 4s and 5s. But when asked to comment on their vendors' attentiveness, some couldn't resist throwing a few barbs. "They answer our questions, I'm just not sure how honestly," says Mary Finch, information systems manager at Marathon Equipment Co. in Vernon, Ala. "Six months after promising that their products are fully compliant, a few vendors came back saying they didn't mean completely compliant."

Not all surprises cost money and time. Nearly every company earned dividends from its year 2000 efforts.

Companies are finally discovering what they have built over the past 30 years and some are taking the opportunity to skim off the fat.

Companies say they will also emerge from this project with a better appreciation for testing, excellent test methodologies they can leverage in the future and staffs that are expert in project management.

What follows is a closer look at some of the participating organizations and what they have learned in their year 2000 projects.

Shipshape state

STATE OF FLORIDA
Tallahassee
Nuggets: Year 2000 provided a starting point to rework how agencies manage data. Too little help from vendors in finding date fields in embedded systems.

As big of a hassle as it's been to get 32 separate state agencies in line with the state of Florida's year 2000 effort, the job may be what the state needed to finally conform its overall data administration.

"Y2K forced us to take a hard look at the amount of data being shared across local state agencies, the federal government and with our citizens," says Glen Mayne, the state's project director.

The state has never had a strong data administration function. It has seven elected cabinet-level officials operating autonomously, and getting them to agree on a unified form of data management could never be accomplished, he says. Mapping the interfaces among government agencies and the private sector was necessary for the state's year 2000 testing, "but it may provide an excellent starting point for improving our data administration function within our state government," Mayne says.

Most of the state's hidden expenses are coming from processors that were truly hidden.

"We've found some systems during our inventory that had been forgotten by everyone, which have taken some extra resources to fix," Mayne says. But the most unexpected costs, he explains, have been from products with embedded chips in them.

Agencies have been instructed to examine any system not on the state's list of compliant devices for internal clocks. However, they have often been stumped by systems they don't normally maintain themselves. "The PBX system — there is a good possibility that there are chips in there with two-digit dates," Mayne says. But without the vendors' involvement, it's been too difficult to test those systems, he says, "and the fact that vendors aren't being cooperative is a worry." Just finding the embedded technology has taken its toll in time and cost, but it's an unavoidable investment, according to Mayne.

When Mayne started corresponding with software and hardware vendors 18 months ago, nearly all gave a date when they would be compliant. Since then, "Our suppliers have suddenly contracted a serious disease called lockjaw," he says. "Even those [that] gave written statements that they would be compliant have crawdaddied on us since." The aloofness of those vendors has forced Mayne to put some horsepower behind the state's request for information. The next written inquiry is going out under the signature of the state's attorney general. "That spells frustration," he says.

Vendor cooperation key

ST. PAUL FEDERAL SAVINGS AND LOAN
Chicago
Nugget: Cleaned up software library.

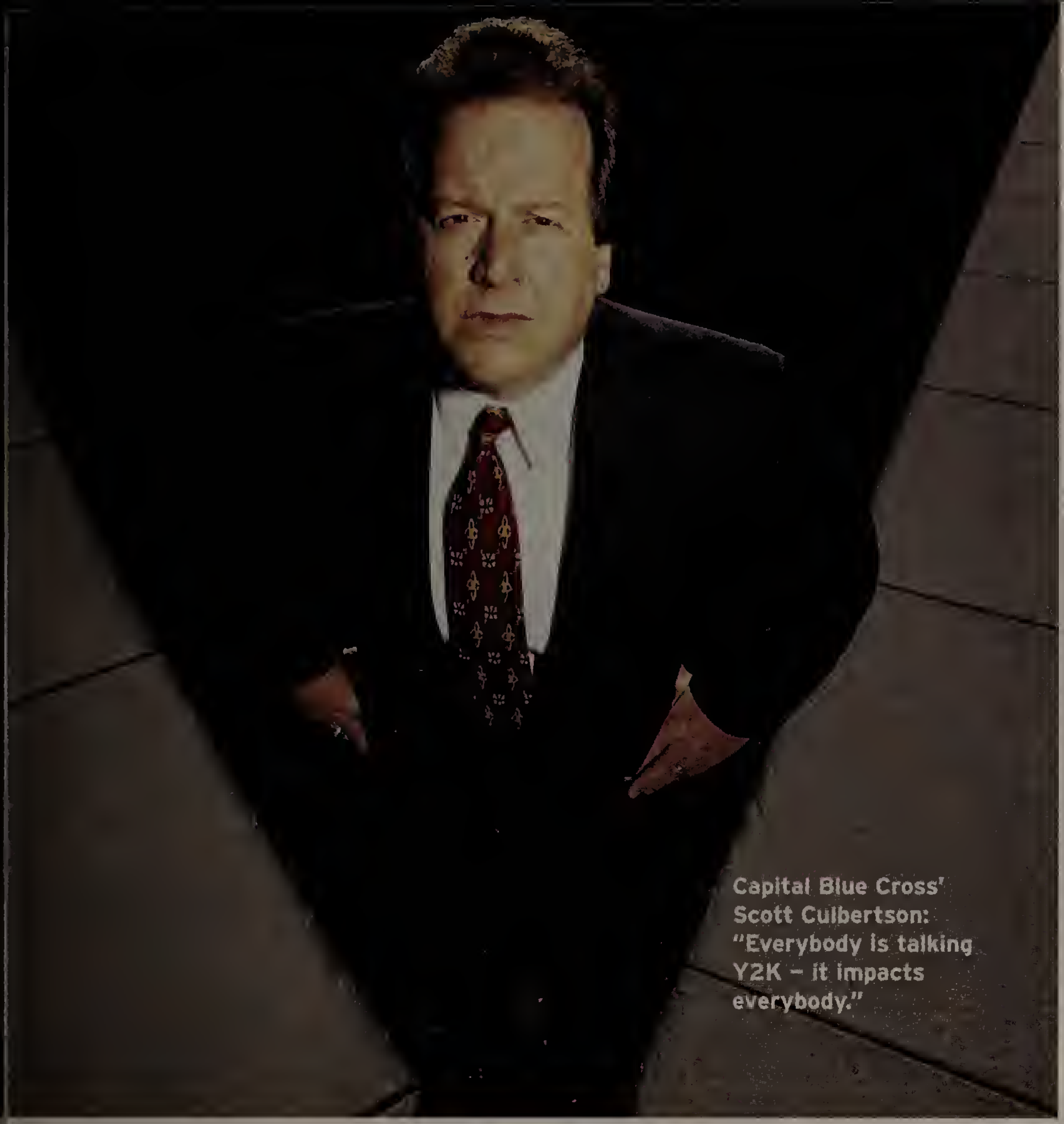
St. Paul Federal Savings and Loan in Chicago is in an enviable position. It's on the cusp of completing its year 2000 conversion. One mainframe, three midrange systems and a client/server network, and all that is left is some final testing of the mainframe code and some client/server software updates.

Much of St. Paul's success comes from the cooperation it has received from vendors and business partners, a luxury many other companies interviewed haven't enjoyed. But in the extremely regulated banking industry, vendors typically work under contracts that bind them to various regulations and deadlines. "Vendors specific to our industry are very sensitive to those regulations and have often taken the lead in providing appropriate software and testing scenarios," says Fred Fernandez, first vice president of IS.

Fernandez also had the luxury of following a set of guidelines issued by the Federal Financial Institution Examination Council. "They have led the [financial] industry through the entire process," Fernandez says. From the inventory, remediation and testing processes to how to deal with contractual issues, vendors and keeping customers informed, "they have been the backstop in this whole process."

The side benefit to this project, according to Fernandez, is a clean software library that once had been littered with numerous dead programs and systems. Various versions of account analysis programs, transaction and financial reports sometimes caused problems when like reports didn't include the same data fields.

"Now we only have one version of these systems, the year 2000-compliant version," he says. It was also an excuse to upgrade a number of systems: Cobol 2 was switched out for Cobol VSE and all software development was moved off the mainframe to PCs using Micro Focus.



Capital Blue Cross' Scott Culbertson: "Everybody is talking Y2K – it impacts everybody."

JAMES WAISERMAN

Backed by senior management

CAPITAL BLUE CROSS
Harrisburg, Pa.
Unexpected: Underestimated time and expense for testing.

Scott Culbertson, a senior technical staffer, says he feels pretty good about where Capital Blue Cross stands in its year 2000 effort. "But I'm still scared," he says, which is what keeps him motivated.

Capital's mainframe code remediation is about 90% complete, which is a notable accomplishment for a shop that does 95% of its processing on the mainframe and has 13 million-plus lines of code.

Culbertson gives a lot of the credit to the early backing by senior management. "They approved some heavy expenses for us very early on that kept us working without interruption," he says.

One such expense went toward setting up a separate test environment on the mainframe, which was much more expensive than originally thought. At issue was the licensing: A number of vendors required the maximum fee. "They didn't want to allow us to just run the systems temporarily," Culbertson says.

The amount of testing also turned out to be more time-consuming and expensive than planned. The team originally thought testing would be 25% to 30% of the entire project, but it turned out to be more like 50%. But the project did discipline Capital Blue Cross to better maintain its inventory. Never again does Culbertson want to waste time to get an accurate count of his systems. "A smaller benefit has been networking with peers in other companies and learning their approaches. Everybody is talking Y2K — it impacts everybody," he says.

Underestimated cost, difficulty

SECURITIES INDUSTRY ASSOCIATION
New York
Nugget: Staffs now expert in project management.

The securities industry revolves around dates: tracking of trade, dividend and proxy information and the way funds are posted to client accounts. "There isn't anything we could think of that wouldn't have a date associated with it somewhere," says John Panchery, year 2000 project leader at the Securities Industry Association (SIA) in New York.

Realizing the potential catastrophe, the SIA took it upon itself to orchestrate the testing and act as a conduit for the year 2000 teams at the different member companies. And while the importance of testing was never underestimated, according to Panchery, the SIA did underestimate the cost and the difficulty testing would pose. "We learned that there is a lot of work to pulling off a test when the systems aren't real," he says. "It's easier to test live systems than recreated ones."

When completed, the payback to the securities industry will be newly cleaned systems that Panchery expects will help the securities industry grow more efficiently and better serve the public over the next 10 years. "For the first time, we were forced to take inventory of what we've created over the past 30 years," and the

Year 2000 surprises, page 78

Some surprises

COST: It's gotten so sensitive in the legal arena that few [vendors, suppliers, business partners] will give straight answers on their compliance schedule. From having contracts written up and examined, our legal expenses are larger than we anticipated at this point of the project. Every contract we issue has a year 2000 clause in it, which vendors insist on arguing over.

CHARLES GERHARDS, director of technology center
Commonwealth of Pennsylvania
Harrisburg, Pa.

BENEFIT: The cost to remediate our code has been less than originally anticipated. Many of the programmers who originally wrote the programs are still at Marriott, and their familiarity with the code has moved the renovation right along.

INA KAMENZ, vice president, office of the chief information officer
Marriott International, Inc.
Washington

COST: We are asking for firmware upgrades from vendors we typically don't have much contact with, like our elevator and central air conditioning companies. We've had a difficult time addressing who at GMH has responsibility for these issues and who should follow up with these vendors.

JOHN BOULANGER, director of IS
GMH Development Group, Inc.
Wayne, Pa.

COST: At least half of our time is being spent on testing. That's twice as long as we had estimated.

KITTY FRIEDMAN, senior programmer/analyst
Wright State University
Dayton, Ohio

COST: It's not just the applications that you need to worry about. Some of our largest cost increases in this Y2K effort have come from our infrastructure, telecommunications, facilities and supply-chain systems.

JIM FLYZIK, CIO
Department of the Treasury
Washington

BENEFIT: We've milked our older technology for too long, and this problem is what pushed us to update and modernize our systems. We in the IT office have wanted to get a little closer to technology's cutting edge. This gave us the excuse.

TRENT COLVIN, IS director
PST Vans, Inc.
Salt Lake City

COST: Not only do all the systems need to be changed and certified, but we also realized the historical files need to be worked on so they can be referenced in the future.

JOHN PANCHERY, year 2000 project manager
Securities Industry Association
New York

Norstan's Mary Lynne Perushek says replacing systems lessened the year 2000 workload and aligned systems more with business goals.

PER BREIEHAGAN

Year 2000 surprises

CONTINUED FROM PAGE 77

two-year-plus spring-cleaning effort is expected to reduce the overall number of programs, and their maintenance, by 15% to 20%.

The staffs are also becoming expert in project management. In addition, they are becoming very adept at doing inventory and working to put programs into production without sacrificing the programs' current versions. They are also learning how to work as a unit and how to report the progress up through the proper channels within the company.

WHAT WAS THE BEST SURPRISE FROM YOUR YEAR 2000 CONVERSION?
(Top four responses)

Increased management's awareness of the importance of IT	36%
The chance to replace old systems	23%
The chance to improve existing systems	15%
Streamlined IT operations	6%

WHAT WAS THE WORST SURPRISE FROM YOUR YEAR 2000 CONVERSION?
(Top four responses)

Labor was more expensive than expected	18%
The problem was bigger than we thought	14%
Management wouldn't acknowledge the problem	11%
Software was more expensive than expected	10%

(Percent of respondents, based on survey of 104 companies.)
Source: Computerworld Information Management Group

Commonwealth of Pennsylvania

HARRISBURG, PA.
Nugget: Laid the groundwork to remake how citizens deal with government.
Unexpected: Embedded technology costs mounting.

The Commonwealth of Pennsylvania feels it can leverage the relationships the year 2000 project forged among its state agencies to create a single face of government for its citizens.

"Now is the time. We have the momentum," says Charles Gerhards, director of the commonwealth's technology center. "When citizens apply to an agency for a permit or a license, they don't want to know all the other agencies involved, they just want it done."

Getting the entire state working as a single enterprise instead of as individual agencies is a goal Gerhards now feels is possible with newly honed project management skills. Not only have the agencies learned the basics of working toward a common goal, but Gerhards and his team have learned how to manage and motivate the different agencies to achieve a desired result.

At the crux of the year 2000 coordination effort is a custom-built project management system that moved every agency through its inventory collection to the remediation planning to reporting its monthly progress. The concept behind the project management application is what will live beyond the year 2000. That is, every project will have an established unit of measure. Agencies will be required to plan against that measure and report their progress, after which they will receive monthly grades. "Grading is a great motivator, especially when it comes from the governor's office," he says.

Regarding hidden costs, Gerhards knows exactly what is causing them but can't begin to guess what they will amount to. "Embedded technology — we're running into it everywhere, in our heating and ventilation systems, in the security systems, PBXs, postage metering systems. The vendors tell us it's old equipment and it's our problem, and we realize we don't have a contractual leg to stand on."

Replacement, not remediation

NORSTAN, INC.
Minneapolis
Nugget: New systems are aligned to business goals.

Norstan's IS department jumped right on the year 2000 problem when it figured out that it could be used to justify its systems replacement strategy to senior management.

That idea hit Mary Lynne Perushek, vice president of IS, five years ago when the year 2000 problem was just starting to create a buzz. Perushek had been strategizing on what to do with the company's aging inventory and financial systems when the millennium problem delivered the argument to replace them altogether. "Explaining the problem to the decision-makers took some work back then, but the cost to replace vs. the cost to remediate gave us the leverage we needed to push it through," she says.

The benefit of replacing systems, as Perushek and her IS team see it, is that certification is all that's left to do on them. But the more significant benefit is that Norstan gets new systems that are more aligned to its current business.

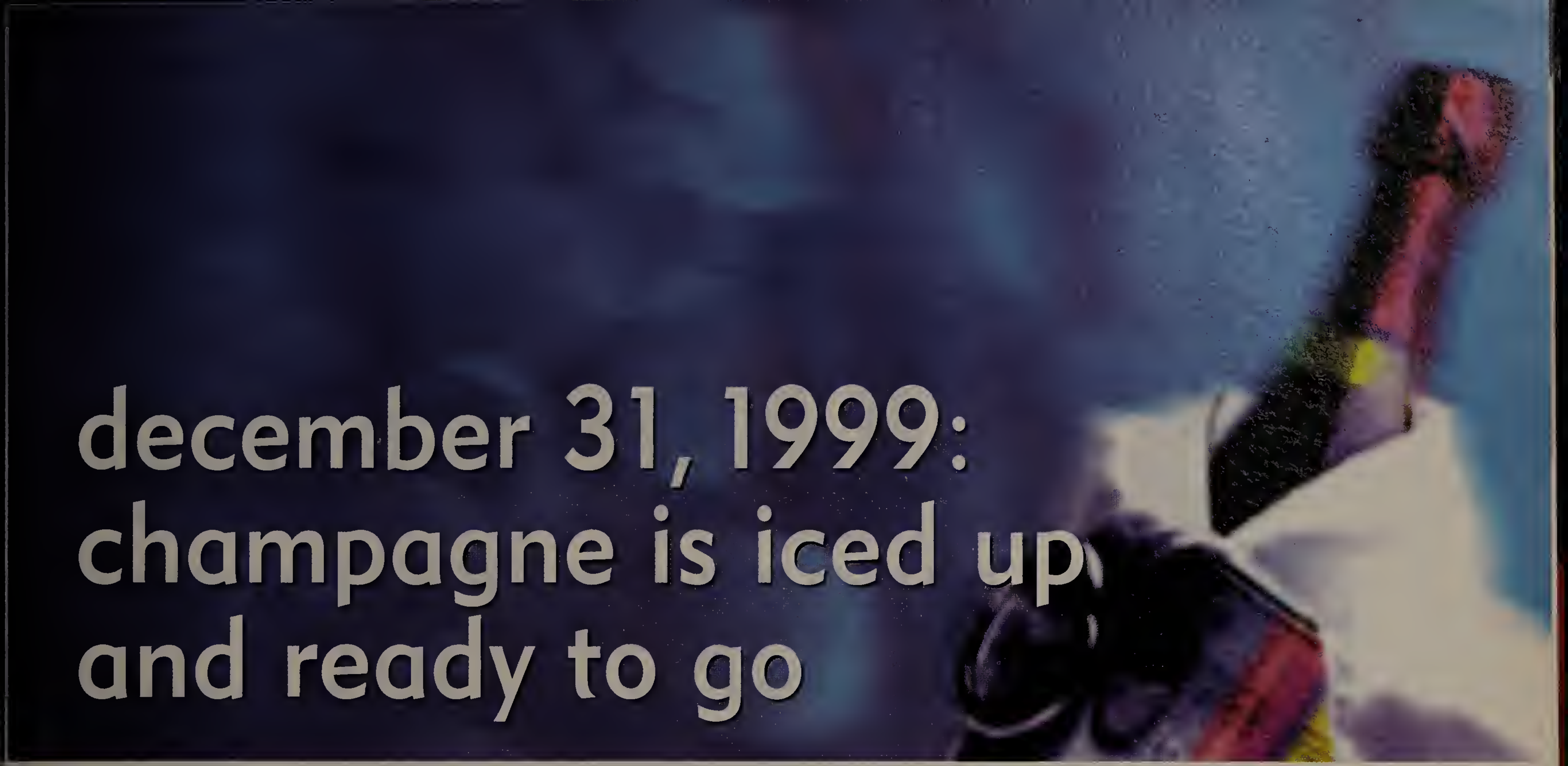
So far, surprises have been kept to a minimum. "But just the perception by businesspeople that it's either 'help me, the sky is falling' or that it's just nothing" has made every conversation on year 2000 unpredictable, she says.

Although Perushek says no hidden costs have popped up yet, she's expecting to pay at some point for her heavy reliance on off-the-shelf software.

"I fear vendors may change their position on whether or not they are compliant as the date draws closer, in which case we will spend additional funds retesting and recertifying," she says.

So far, so good, Perushek says, and she admits her fears may be unfounded since vendors are only concerned with certifying their current and future releases. "Actually, that's something that really surprised us, that vendors aren't concerned with their previous versions," she says. ☐

Burden is Computerworld*'s features writer.*



but you're at work, grabbing a soda out of the vending machine while salvaging your company's PCs

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In Depth

STUPID ERROR MESSAGE TRICKS

BY STEVE ULFELDER

You know what ticks off Ben Ezzell? Bad error messages. Messages that "offer no intelligence, don't tell the user what's wrong [and] frustrate people," he says.

Ezzell is a veteran programmer and author (how many books has he written? "I think 23," he says with uncertainty) who lives in Guerneville, Calif. While researching his latest book, *Developing Windows Error Messages,* Ezzell and publisher O'Reilly & Associates held a contest in which they asked people to send in their favorite bad error messages. Ezzell was the sole judge.

Of course, there are degrees of rottenness. "Some bad error messages," Ezzell says, "are just placeholders that slip through. We've all been there." Ezzell acknowledges he once wrote a message that addressed the user as "Dumbkopf" and was mortified when the dialog made its way into production. Thus, he sympathized with Orem, Utah-based Viewpoint DataLabs, which managed to include the following in its LiveArt install:

▸ Setup is unable to locate a suitable version of DirectX on your machine. You will need to install DirectX before you can use LiveArt98, dumbass!

Sympathy notwithstanding, Ezzell awarded the entry third prize. Red-faced developers at Viewpoint noted that the message had simply slipped through the quality-assurance cracks and that they'd fixed the problem "about 4 seconds after we realized it was still there."

Ezzell hastens to point out that he isn't a Microsoft hater; some of his favorite error messages are from Unix, including this succinct goody:

▸ Printer on fire.

Ulfelder is Computerworld*'s senior editor, In Depth and Opinions. His Internet address is steve_ulfelder@cw.com.*

Contest entries

▸ The procedure failed with the following error:
The command completed successfully.

▸ Not enough memory to display this dialog.

▸ Error: Keyboard not found. Press F1 to continue.
And its cousin:
▸ Your mouse is not working, please click here to acknowledge.

▸ Cannot delete tmp150_3.tmp: There is not enough free disk space. Delete one or more files to free disk space, and then try again.

▸ Unexpected error, quitting.

What makes this entry, found in Internet Explorer 4.0, is the attached comment:
▸ An Internet error occurred.
Submitter Jeffrey Schmitz writes: "Yeah, right, Bill, the Internet is broken and Internet Explorer is working perfectly."

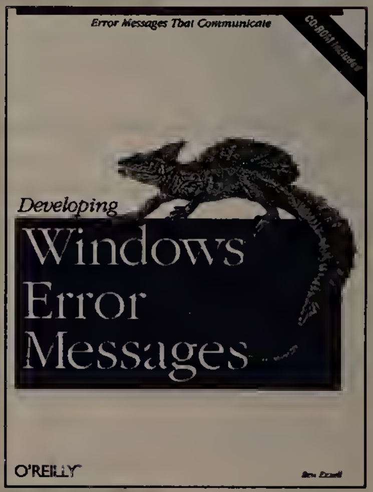
▸ Windows has found an unknown device and is installing a driver for it.

When using Windows 95 with a Compaq Computer Corp. Presario:
▸ Your system shell has changed. The Compaq software will work with your new shell, but the new shell will not work with your Compaq software. Do you wish to keep your Compaq software working? Click yes if you are unsure.

▸ Error 0000: No errors found, restarting computer.

And finally, the grand-prize winner:
▸ You need to supply a fax number in order for your request not to receive fax notifications to be processed.

You can see the rest of the contest entries at *http://ezzell.org/Error_Contest/Error_Contest.html.*



▲ ***Developing Windows Error Messages*** **by Ben Ezzell (O'Reilly & Associates, Sebastopol, Calif.; 1998; 254 pages; $39.95, includes CD-ROM)**

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7:45am **Continental Breakfast & Conference Registration**

8:30am **General Session:**
Recruiting - Into the Next Millennium
Gary Cluff,
President, Cluff & Associates

10:00am **Sponsor Showcase/Coffee Break**

10:30am **Concurrent Sessions:**
Retaining the Best:
Practical Retention Strategies that Work
Barbara Mitchell, The Mitchell Group

Prudential Case Study:
Integrating a Staffing Partner
Corinne Costa,
Prudential Insurance Company of America

12:00pm **Luncheon Keynote:**
Maryfran Johnson,
Executive Editor, Computerworld

1:30pm **Town Hall Forum**
Moderator Barbara Mitchell,
The Mitchell Group

2:30pm **Sponsor Showcase/Coffee Break**

3:00pm **General Session:**
Building an Internet Recruitment Strategy
Tracey Claybrooke,
Claybrooke & Associates

4:30pm **Program ends**

Selected Sessions Include:

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IT leadership: Are you the right fit?

By Rochelle Garner

Here's a question for the '90s: How do IT organizations recognize leadership potential among their technical staff? To find out, *Computerworld* posed a series of questions to high-ranking executives from the financial, manufacturing and telecommunications industries. Here are their views on what it means to be a leader, who can become one and what the leadership career options are.

THE PANELISTS

Robert H. Spicer II
Executive vice president and chief information officer
Chevy Chase Bank
Chevy Chase, Md.

Robert Rubin
CIO
Elf Atochem North America
Philadelphia

Rick Harder
Vice president
BellSouth Corp.
Atlanta

CW: How do you identify IT professionals in your organization who might make good leaders?

SPICER: We look for self-initiative, positive attitudes and absolute care and concern for an individual. It comes down to someone who's comfortable in dealing with people, in both good and bad times, but in particular someone who can inspire a team and make any project an exciting learning experience.

RUBIN: We always have fewer people than we need to do the job, and that almost forces people into a leadership role. We expect people to identify problems and to identify whom they need to get together with to solve those problems.

HARDER: First and foremost, I look for people who bring a business perspective and people perspective to their jobs. People in a technology environment too often put too much emphasis and priority on the technology, as if technology were an end in itself. And that's not the case. The way to get things done in business is to understand the basic model of the business, the way the business operates, the way it gets business done. And largely, business gets business done through people.

JONATHAN CARLSON
ARE YOU "CUT-OUT" TO BE A LEADER?
CARLSON

CW: Can an IT professional retain a purely technical focus and still be considered a leader?

SPICER: Absolutely. Having an interest in business is not essential in a programming team. But as you get closer to the end user, say in project management, then you do need to understand business. And in general management, it's an absolute necessity if you don't want to be considered a back-office provider.

RUBIN: Yes, they can. But to have leadership in a technical area, your credibility and flexibility are paramount. The key there is that this person doesn't think his or her way is the only way of doing something.

HARDER: Within my definition, no. Leadership requires understanding financial terms, strategic terms and the way marketplaces work. You have to understand what opportunities are out there in that marketplace and how technology can be leveraged to take advantage of those opportunities.

CW: From your experience, can leadership be taught, or is it something people are born with?

SPICER: I think it's a blend. I've seen people who have a natural ability to lead and compete, but they still need to be educated. Those skills can be taught. They can learn to become good listeners and to put themselves in the shoes of the other person. You can teach them how to interact with people and how to avoid putting their foot in their mouth by speaking too quickly.

RUBIN: Some skills are innate; others have to be worked at. Every one of us can rise to the occasion and become a leader. But the key, I suppose, is what's inside. People must believe that you believe what you are saying. And you have to hold the good of the organization, not your personal career, paramount.

HARDER: I think it's both. All that's required to be a leader is a reasonably intelligent individual who is perceptive and has some social skills. They have to have a fundamental and sincere interest in people and be able to convey their vision so that others can buy in to it. They can't just assume that their ideas are so elegant and forthright that they don't require explanation or articulation or socialization.

CW: What are the long-term opportunities at your company for IT professionals who possess leadership skills?

SPICER: The opportunities are becoming infinite, especially for those people who do understand business. Today, there's such a dependence on technology that if someone on a business team also has a technical background, they become a huge asset. The financials industry comes down to money and knowledge, and both of those can be moved electronically.

RUBIN: People can rise within the IT organization, as well as move to the business side. But I don't have a lot of people who want to leave. Instead, a number of people from the business units have chosen to work in IT, and that says something about the opportunities here.

HARDER: That's the astounding part to me. I think the potentials are unlimited. There is a huge demand in my corporation for people with good business skills who are also very capable in information technology. That's why you see a lot of companies in this industry that are beginning to consider the path to the CEO office is through the CIO office. □

Garner is a freelance writer in San Carlos, Calif.

First-year lessons

By Steve Alexander

TODD CRAVELINE

IT contract work often holds surprises for newbies to this field. Here are some hard lessons learned by two recent converts

Reggie Luther left full-time information technology work in Georgia for contracting because he wanted to be independent. He hopes to stay that way.

IT CONTRACTING AND CONSULTING

David (D. W.) Neuman tried contracting in California as a way to shop for a new full-time job.

Both are newcomers to the growing ranks of IT consultants. Their new lifestyle often means trading off full-time work, job security and benefits for flexible work hours, 25% to 50% higher pay, a frequent change of workplaces and no job security or benefits.

Both have experienced some trying moments in their first few months as contractors. And both have found that, as contractors, their reception from co-workers isn't quite as warm as it was when they were employees.

Still, neither has regrets about opting to leave full-time employment behind, at least for now.

"I went in thinking I'd be treated a little bit differently, but I wasn't sure in what way," Luther says. "The difference is, I don't go to some of the meetings employees go to, and I'm maybe expected to perform a little better or a little more precisely because they're paying me more."

Neuman was a bit surprised to find that contractors aren't treated the same as employees. "I felt like a third wheel rather than being part of the crew. It takes some time to fit so you can be yourself."

Here's a look at the experiences both these contractors had in their first months on the job.

Alexander is a freelance writer in Edina, Minn.

Reggie Luther

IT contractor at two denim clothing manufacturers
Columbus, Ga.

When Luther's full-time employer, Columbus, Ga.-based cloth manufacturer Swift Denim, was planning layoffs in July, Luther volunteered to leave his job as an IT project manager. He had worked there for nine years. These days, he is working as a contractor at his old firm and at another denim-manufacturing company in the same city.

Luther implements new order-management and inventory-process-control software that runs on IBM AS/400s. Between the two contracting jobs, where he works a combined 50 hours per week instead of the 40 he worked at his former full-time job, he earns about 50% more money.

The extra hours come not only from working two jobs, but also from documenting his work more precisely. It's a necessary step that will benefit those who will carry on when he moves to his next job.

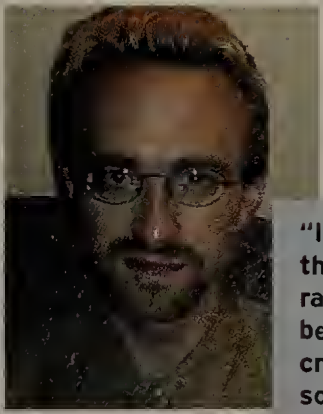
"The pay was about what I thought it would be, and it was definitely worth the move to contracting for that," Luther says. "If you are an employee, you are dependent on one place for income. But as a contractor, you have unlimited sources of income." And he hopes contracting will let him branch out from AS/400 work into client/server development and project management. "If I'd stayed as an employee, I would not have gotten client/server experience," Luther says.

Luther's biggest concern with contracting is whether he will have to travel to find additional contracts once his current jobs expire. "I've got small kids, ages 6 and 11, and I'm not crazy about traveling all the time," he says. Luther says he's thinking about moving his family to Atlanta, where he should be able to find more work close to home.

> **"The difference is, I don't go to some of the meetings employees go to, and I'm maybe expected to perform a little better or a little more precisely because they're paying me more."**
> **– Reggie Luther**

David (D. W.) Neuman

IT contractor at CNET
San Francisco



Neuman quit full-time employment in February because he felt overworked at Volpe Brown Whelan and Co. LLC, an investment banking firm in San Francisco. He had been with the firm for nearly two years as a senior information systems technician doing help-desk work and installing desktop hardware. Previously, he had done similar technical support work at Intel Corp. in Rio Rancho, N.M.

Since early August, Neuman has been contracting at San Francisco-based CNET, Inc. He handles desktop support and installations at the company, an operator of World Wide Web sites and provider of cable television programming.

Before that, Neuman had other short-term contracts, including a month at another investment banking firm and two weeks at an advertising agency.

"Contracting allows me to have freedom. If I work for a company and it's something I enjoy, I can press for a full-time job. But if it's not to my liking, I can take off. I also get to meet new people and learn a variety of new skills," Neuman says.

He hopes contracting will teach him more about networking and Windows NT. Neuman isn't married. He says he prefers to stay in San Francisco and says there is plenty of contract work there.

Neuman's long-term goal is to use contracting to find a new full-time job. "Contracting allows me to check out a lot of places at my leisure without doing a ton of interviews. I think it's the best way to get into a company through the back door. If they like you, then you've already proved yourself, and you don't have to impress the boss if you take a job there."

The downside to contracting is that there can be unexpected lulls between jobs, Neuman says.

"Once, I was between jobs and waiting for one to come through that would be close to home. In the meantime, I turned down three other jobs. But the job I was waiting for fell through, so I was out of work for two weeks," he says.

Neuman is also bothered a bit by having to prove himself all over again on each new contracting job. "At the end of a contract, you're leaving people that you're comfortable with, so it's a loss in a way." □

> **"I felt like a third wheel rather than being part of the crew. It takes some time to fit so you can be yourself."**
> **– David Neuman**

REGIONAL SCOPE

Virginia is hiring: Feast or famine

With the IT hiring frenzy starting to calm a bit, here's a look at what employers still really want

By David Weldon

DON'T TRY to impress Ken Drews with "sky is falling" predictions about an IT labor supply-and-demand gap. He isn't looking to increase his IT staff in the next year.

In fact, the information technology director at the Office of Central Services of the Securities and Exchange Commission in Alexandria, Va., says he may issue fewer paychecks next year. "We are completely reorganizing the entire IT organization. When we're done, we should be about the same size, maybe a bit smaller," Drews says.

As one of the largest IT employers in Alexandria, that obviously isn't welcome news for job-seekers. But Drews' projections aren't shared by all here, and the city benefits from the draw of the nation's capital, its large telecommunications industry and the wealth of local government agencies.

WHO'S HIRING

Expected IT hiring for the next quarter and year ahead has dropped from last year's projections for the region

	3-month projection	12-month projection
Permanent IT staff	1% increase	2% increase
Contract IT staff	7% increase	Not available

Source: *Computerworld*'s Quarterly Hiring Forecast, to be published next month

Statewide, the Virginia IT job market is a patchwork of opposing hiring needs and opportunities.

"Year 2000 work has pulled a lot of people back to IT jobs," Drews says. But it also has stalled other IT hiring except for critical job vacancies. "Many companies are putting other hiring — and other projects — on hold," Drews says.

When local employers are hiring, they want a wide range of technology skills. Most in demand: anything Internet-related, mainframe skills, management skills, experience with newer development tools and advanced programming skills.

JEFF GREENBERG/VIRGINIA TOURISM CO.

Its beauty and its fame as the land of Jefferson, Monroe and Madison make Charlottesville its own worst recruiting enemy, one anonymous recruiter says. "We have the lowest unemployment rate of any major city in the country," she says. The city routinely grabs national honors as one of the best places to live. But "most people coming into the region are older, retirees . . . and the labor supply is unbelievably low for really experienced people."

That leaves local employers scrambling, forced to raise IT salaries substantially to compete and to train a lot of non-IT employees for technical job openings.

The picture is only a little better in Arlington, where IT recruiters at Bell Atlantic Corp. are looking outside Virginia for IT recruits. Bell Atlantic has been able to fill most of its IT openings this year but depended on contractors to do it, according to Sally Moore, recruitment manager for IT at the company. And the company has especially ambitious hiring plans for next year, hoping to hire 200 IT employees and replace 200 contract positions with an additional 200 staffers.

Bell Atlantic is turning to out-of-state job fairs, starting in Dallas, to lure new talent, especially in mainframes. It may be a tough sell to lure relocators, however. Though IT salaries are often higher in the Arlington area, the cost of living is also notoriously high.

It's a similar tale in the tidewater city of Norfolk, in the state's southeastern corner. Sentera Health System is recruiting in Pennsylvania, says Jerry Kevorkian, the company's director of systems and networking. Again, most needed are highly experienced IT professionals.

Kevorkian says Sentera is wrestling with a 17% vacancy rate that is kept high by turnover driven by salaries elsewhere in the state. To stop the bleeding, the company offers stay-on bonuses and post-millennium training in new technologies to critical year 2000 project staff. It also turned to contractors, offering new noncash benefits, increasing training "dramatically" and training non-IT employees in IT skills. ☐

Weldon is Computerworld*'s senior editor, IT Careers.*

THE MOST WANTED TECHNOLOGY SKILLS

IT managers in Virginia say they will want the following skills in their hires for next year:

Technology area	Most wanted skill	% hiring
Internet/intranet	HTML	45%
Languages	Cobol	35%
Development tools	Microsoft Visual Basic	38%
Networking	TCP/IP	65%
DBMS and RDBMS	Microsoft SQL Server	45%
Operating systems	Windows 95	90%
Internetworking	Ethernet switching	35%
LAN	Microsoft NT Server	55%
Office/E-mail groupware	Microsoft Exchange	35%

Source: *Computerworld*'s Annual Skills Survey, to be published November 1998

IS SALARIES IN VIRGINIA AND THE D.C. AREA*

Job title	Virginia	D.C.	National average
Chief information officer	$106,000	$121,000	$116,000
Director of IS/MIS	$78,000	$80,000	$82,000
Project manager	$68,000	$54,000	$67,000
Senior systems analyst	$59,000	NA	$59,000
Database manager	$59,000	$47,000	$63,000
Systems analyst	$54,000	NA	$54,000
Systems programmer	$48,000	NA	$50,000
Web designer	$48,000	$37,000	$47,000
Network administration	$46,000	$42,000	$49,000
Programmer/analyst	$45,000	$40,000	$45,000

Source: *Computerworld*'s Annual Salary Survey, September 1998; NA=Not available
*Including the Alexandria and Arlington region

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SENIOR DATABASE ADMINISTRATOR
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You will evaluate system/server needs for the surround technology area, including imaging, document management and Pegasystems; provide advice/guidance on Pegasystems technology requirements while managing the Pegasystems NT fileserver; and assist in workstation configurations and participate in HW/SW evaluations. Requirements include a BS/CS or equivalent, minimum 5 years IT experience in a PC/network environment, strong analytical and interpersonal skills and familiarity with Multi-Processing Operating Systems (Win NT), hardware issues and RDBMS. Some travel required.

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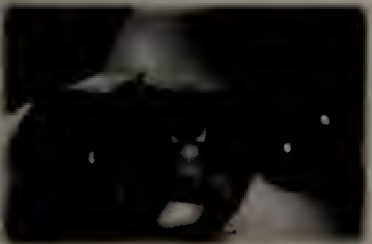

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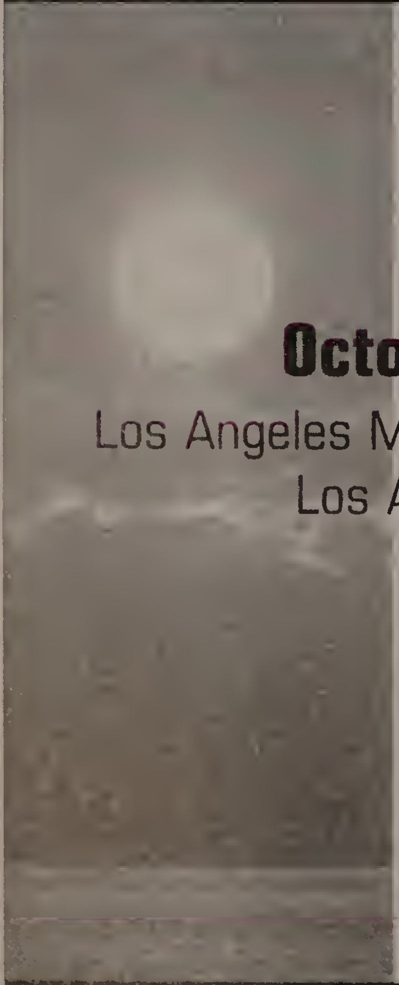

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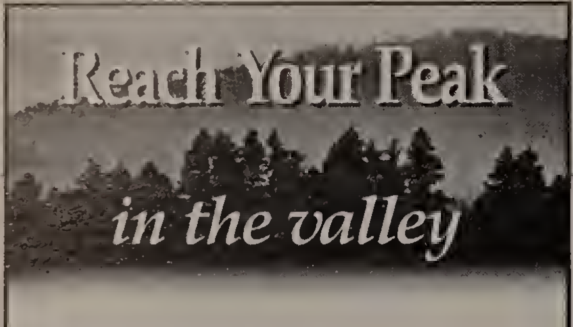

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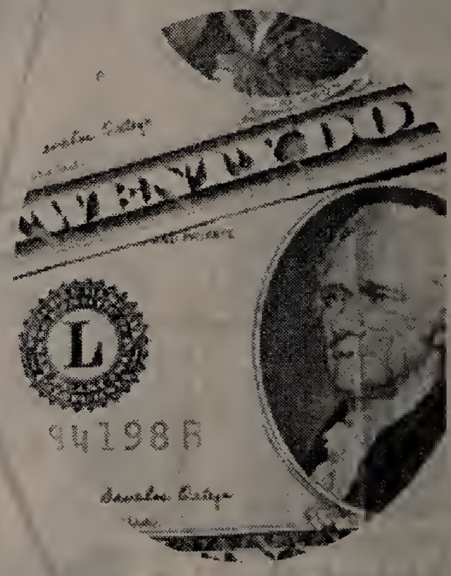

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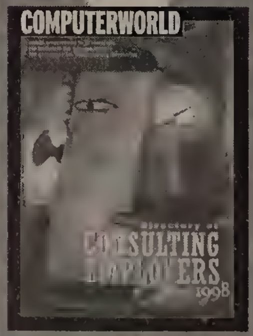

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10:00am	**Sponsor Showcase/Coffee Break**
10:30am	**Strategic Staffing in a Competitive Environment** *Carlos Echalar, Litton PRC*
12:00pm	**Luncheon Keynote:** *Joe Maglitta,* *Industry Editor, Computerworld*
1:30pm	**Town Hall Forum** *Moderator Fred Rodriguez,* *Mexican American Opportunities Foundation*
2:30pm	**Sponsor Showcase/Coffee Break**
3:00pm	**High Tech/High Touch: Creating the Recruiting Office of the Future** *Sue Keever,* *The Keever Group*
4:30pm	**Program ends**

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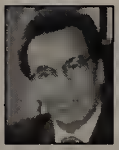

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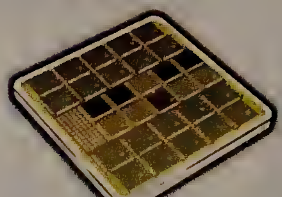

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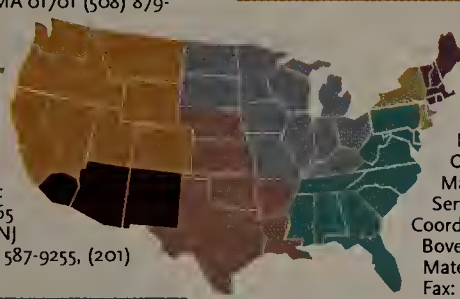

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The Week in Stocks

Gainers / Losers

PERCENT

Gainers		Losers	
Quarterdeck Corp.	123.1	Comshare Inc.	-32.2
Excite, Inc.	52.6	Radius Inc. (L)	-22.7
MTI Technology Corp.	48.7	Dataware Technologies Inc.	-22.0
Lycos Inc.	40.1	Proteon Inc.	-17.9
Exabyte	35.8	Manugistics Group, Inc.	-16.8
Amazon.com	34.8	Storage Computer Corp.	-16.7
Yahoo! Inc. (H)	29.6	Cirrus Logic	-15.7
Network Solution Inc	29.4	Interleaf Inc.	-15.2

DOLLAR

Gainers		Losers	
Amazon.com	27.88	Computer Sciences (H)	-5.25
Yahoo! Inc. (H)	26.94	Policy Management Sys.	-2.69
America Online	16.69	Documentum, Inc.	-2.56
Excite, Inc.	14.13	Manugistics Group, Inc.	-2.03
Rambus Inc	11.25	American Mgmt. Systems	-1.91
Lycos Inc.	9.94	Comshare Inc.	-1.81
Network Solution Inc	9.88	Network Equipment Tech.	-1.69
Great Plains Software, Inc (H)	8.13	Struct. Dynamics Research	-1.50

INDUSTRY ALMANAC

Macromedia reanimated

Multimedia software maker Macromedia, Inc. has performed the biggest morph of its corporate life: from money-loser to moneymaker in less than a year. "Here's a company that suffered an operating loss as recently as the December quarter. Now, they've completely reinvented themselves and they're on a very steep [profits] ramp," says Charles H. Finnie, an analyst at Volpe Brown Whelan & Co. in San Francisco.

Finnie estimates that Macromedia's net income will be $13.3 million for the fiscal year ending in March and $24.1 million for the following year. Even more aggressive is the projection from Hany Nada, an analyst at Piper Jaffray Cos. in Minneapolis: a net income of $13 million this year and $32 million next year. Although Macromedia stock lately has hovered in the $15 range, analysts say it should reach the mid-to-upper 20s in 12 months. The stock's highest close was $53 on Jan 2, 1996. By May 1997, it had fallen to a low of $7.06. Analysts credit Macromedia's new president, Robert Burgess, with leading a turnaround based on a new product direction squarely focused on the Internet.

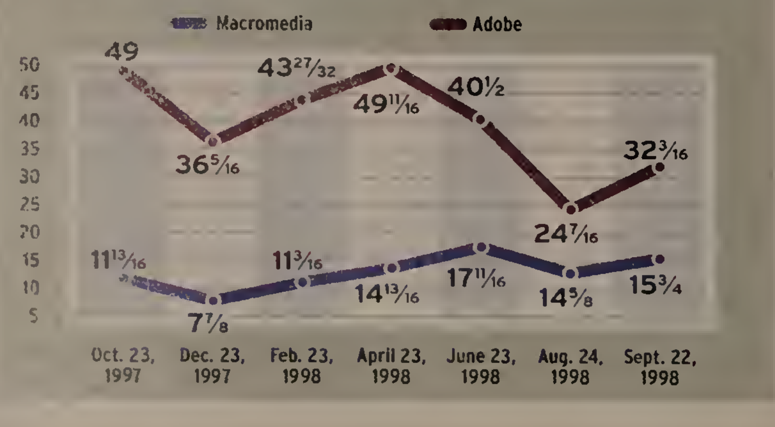
Another reason for the recovery, analysts say, is that Macromedia and its longtime illustration software rival, Adobe Systems, Inc., are getting better at coexisting.

For example, Macromedia recently left the video editing market, where Adobe has established products. And in the coming year, Macromedia is expected to release online learning products and Adobe is expected to debut "Stilton," its answer to the Quark, Inc. publishing system.

"Neither wants any more bloody battles with the other. I think they'll pick niches and try harder to stay out of each other's way," Finnie says. Nada expects Adobe to close out the year with $111 million in net income and next year with $145 million. — Nancy Dillon

MACROMEDIA BACK ON TRACK

With an Internet product strategy, Macromedia is rebounding



Exch	52-Week	Range		Sept. 25 2 pm	Wk Net change	Wk Pct change
Communications and Network Services						**UP 4.7%**
COMS	56.75	22.94	3Com Corp.	31.44	1.06	3.5
AIT	52.13	30.13	Ameritech Corp.	50.75	1.69	3.4
ASND	55.06	22.00	Ascend Communications	47.44	0.81	1.7
T	68.50	43.00	AT&T	59.75	0.19	0.3
BNYN	13.38	2.13	Banyan Systems Inc.	2.81	0.13	4.7
BEL	53.00	37.38	Bell Atlantic Corp.	48.00	3.19	7.1
BLS	77.31	45.25	Bellsouth Corp. (H)	74.88	3.13	4.4
BRKT	22.75	9.50	Brooktrout Technology	15.25	1.38	9.9
CS	34.31	6.63	Cabletron Systems	10.13	0.25	2.5
CGRM	21.88	8.13	Centigram Communications	8.75	0.00	0.0
CSCO	70.25	30.38	Cisco Systems Inc.	66.13	5.56	9.2
CMNT	6.50	3.38	Computer Network Tech.	5.69	0.00	0.0
CNCX	41.00	7.88	Concentric Network Corp.	22.13	4.25	23.8
FORE	28.00	13.25	FORE Systems Inc.	20.06	0.13	0.6
GDC	7.25	2.50	General Datacomm Inds.	3.13	-0.19	-5.7
GSX	47.25	34.81	General Signal Networks (L)	34.94	-0.88	-2.4
GTE	64.38	40.50	GTE Corp.	53.75	2.44	4.8
LU	108.50	36.19	Lucent Tech.	76.88	4.06	5.6
MADGF	8.75	2.63	Madge Networks NV	3.00	-0.13	-4.0
WCOM	57.88	28.50	MCI WorldCom (H)	49.44	2.78	6.0
NETM	5.25	0.94	NetManage Inc.	1.25	0.25	25.0
NTRX	3.50	0.63	Netrix Corp.	1.75	0.13	7.7
NCDI	13.75	5.50	Network Computing Devices	6.25	-0.25	-3.8
NWK	20.63	9.75	Network Equipment Tech.	10.25	-1.69	-14.1
NN	69.38	18.00	Newbridge Networks Corp.	20.44	0.75	3.8
NT	69.25	38.25	Northern Telecom Ltd. (L)	41.06	0.88	2.2
NOVL	13.63	6.81	Novell Inc.	12.25	-0.16	-1.3
ODSI	13.75	3.06	Optical Data Systems Inc. (L)	3.50	0.25	7.7
PCTL	11.94	5.38	Picturetel Corp.	7.13	1.19	20.0
OPEN	3.50	0.56	Proteon Inc.	0.72	-0.16	-17.9
RACO	4.13	1.00	Racotek Inc.	1.94	-0.06	-3.1
RADS	29.38	3.81	Radiant Systems Inc	5.25	0.56	12.0
VRTL	10.13	1.88	Retix	2.13	-0.13	-5.6
SBC	46.56	29.19	SBC Communications	42.44	1.38	3.3
SFA	27.94	14.00	Scientific Atlanta Inc.	21.44	2.56	13.6
SHVA	14.69	3.50	Shiva Corp.	4.31	0.41	10.4
FON	80.13	47.06	Sprint Corp. (H)	76.94	4.69	6.5
QWST	47.50	22.00	QWest Communications Int L Inc.	37.00	3.81	11.5
SMSC	18.13	6.25	Standard Microsystems Corp.	7.50	1.00	15.4
USW	58.00	36.88	U S West Inc.	53.19	1.00	1.9
XIRC	27.25	8.63	Xircom	25.19	1.19	4.9
XYLN	31.31	9.63	Xylan Corp. (L)	12.63	2.19	21.0
PCs and Workstations						**UP 7.1%**
AAPL	43.75	12.75	Apple Computer Inc.	38.88	2.31	6.3
CPQ	39.13	23.13	Compaq Computer Corp.	33.88	3.19	10.4
DELL	66.00	17.50	Dell Computer Corp. (H)	65.94	7.50	12.8
GTW	68.75	25.06	Gateway 2000 Inc.	55.31	2.88	5.5
HWP	82.38	47.75	Hewlett Packard Co.	54.56	3.69	7.2
MUEI	19.38	8.44	Micron International Inc.	16.63	2.31	16.2
NIPNY	63.88	32.00	NEC America (L)	33.50	0.06	0.2
SGI	28.69	9.06	Silicon Graphics	10.00	-0.31	-3.0
SUNW	52.81	30.38	Sun Microsystems Inc.	52.13	4.06	8.5
Large Systems						**UP 2.7%**
DGN	30.13	7.00	Data General Corp.	11.88	1.06	9.8
IBM	138.13	88.63	IBM	132.00	6.38	5.1
MDCD	6.63	1.38	Meridian Data Inc.	1.91	-0.22	-10.3
NCR	38.50	23.50	NCR Corp (L)	28.69	3.94	15.9
PRCM	18.63	3.56	ProCom Technology, Inc.	5.00	0.00	0.0
SQNT	27.56	5.75	Sequent Computer Sys.	9.06	-0.06	-0.7
TEXM	6.00	2.50	Texas Micro Inc	2.75	-0.13	-4.3
SRA	52.63	21.44	Stratus Computer Inc.	34.50	0.81	2.4
UIS	30.69	11.13	Unisys Corp.	24.69	1.44	6.2
Software						**UP 3.7%**
ADBE	52.69	23.63	Adobe Systems Inc.	33.38	1.88	6.0
AMSWA	15.63	2.38	American Software Inc. (L)	2.50	-0.31	-11.1
APLX	10.25	2.06	Applix Inc.	2.88	0.44	17.9
ARDT	15.88	6.63	Ardent Software	11.50	-0.16	-1.3
ARSC	36.38	19.25	Aris Corp.	23.69	0.38	1.6
ADSK	51.13	22.25	Autodesk Inc.	25.88	0.94	3.8
BMCS	59.50	27.38	BMC Software Inc. (H)	55.63	3.38	6.5
BOOL	26.00	17.13	Boole and Babbage	23.50	-0.41	-1.7
BOBJY	20.00	8.75	Business Objects	13.25	0.19	1.4
CAYN	3.50	0.13	Cayenne Software Inc.	0.22	0.03	16.7
CNTR	3.00	0.88	Centura Software	1.13	0.00	0.0
CHKPF	50.50	16.88	Checkpoint Software Tech., Ltd.	22.44	3.38	17.7
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COSFF	5.06	1.06	Corel Corp.	2.38	0.25	11.8
DWTI	5.38	2.00	Dataware Technologies Inc.	2.00	-0.56	-22.0
DCTM	59.63	26.00	Documentum, Inc.	40.50	-2.56	-6.0
FILE	32.88	7.56	Filenet Corp.	16.25	-0.56	-3.3
FRTE	15.13	2.78	Forte Software	3.38	0.00	0.0
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TLC	32.81	13.63	Learning Co. (The)	21.81	0.56	2.6
MANU	66.38	9.63	Manugistics Group, Inc.	10.03	-2.03	-16.8
MAPS	14.25	8.38	MapInfo Corp.	10.75	-0.38	-3.4
MATH	4.63	1.75	MathSoft	2.75	0.25	10.0
MENT	13.00	6.75	Mentor Graphics	6.97	-0.25	-3.5
MIFGY	60.63	20.50	Micro Focus (L)	26.00	3.75	16.9
MGXI	14.88	6.00	Micrografx Inc.	10.00	0.75	8.1
MSFT	119.63	59.00	Microsoft Corp.	111.88	7.25	6.9
OBJS	5.25	0.44	ObjectShare, Inc.	1.06	-0.03	-2.9
OMTL	15.00	1.94	Omtool Ltd	3.00	0.38	14.3
ORCL	39.13	17.75	Oracle Corp.	28.88	1.81	6.7
PMTC	36.31	9.00	Parametric Technology	10.00	-0.25	-2.4
PSFT	57.44	26.88	Peoplesoft	30.63	-0.69	-2.2
PTEC	18.38	6.06	Phoenix Technologies (L)	6.38	0.31	5.2
PSQL	27.25	7.38	Platinum Software (L)	10.94	2.31	26.8
PLAT	34.31	16.63	Platinum Technology (L)	19.38	1.50	8.4
PRGS	28.13	12.63	Progress Software Corp.	26.25	1.69	6.9
RNBO	20.13	10.44	Rainbow Technologies Inc.	11.25	0.13	1.1
REDB	10.13	1.88	Red Brick Systems Inc.	2.13	-0.13	-5.6
ROSS	5.40	2.00	Ross Systems, Inc	2.63	-0.03	-1.2
SAP	60.13	38.00	SAP AG (L)	42.81	3.88	10.0
SCOC	6.63	2.38	SCO Inc	3.00	0.00	0.0
SDTI	42.75	9.38	Security Dynamics Tech.	12.75	1.94	17.9
SSW	32.81	16.25	Sterling Software Inc.	23.88	1.25	5.5
SDRC	29.00	8.75	Struct. Dynamics Research	10.63	-1.50	-12.4
SYBS	23.63	5.56	Sybase Inc	6.13	0.28	4.8
SYMC	32.63	12.75	Symantec Corp	13.56	-0.25	-1.8
SNPS	47.13	24.50	SynOpsys	32.75	-0.75	-2.2
SSAX	16.50	3.44	System Software Assoc.	5.94	0.56	10.5
SYSF	10.75	0.50	Systemsoft Corp.	0.59	-0.03	-5.0
BAANF	55.50	25.13	The Baan Co. (L)	27.69	-0.56	-2.0
TRUV	5.19	0.75	Truevision Corp.	1.25	0.19	17.6
VIAS	56.88	6.25	Viasoft Inc.	8.19	0.81	11.0
VSIO	50.88	19.00	Visio Corp.	25.94	0.75	3.0
WALK	20.44	5.25	Walker Interactive Systems	9.13	1.38	17.7
WALL	21.88	10.13	Wall Data Inc.	14.75	1.25	9.3
WANG	32.25	18.25	Wang Laboratories Inc.	18.88	-0.50	-2.6
Internet						**UP 27.1%**
AMZN	147.00	21.13	Amazon.com	107.88	27.88	34.8
AOL	140.50	32.00	America On-Line	115.44	16.69	16.9
ATHM	57.25	18.00	At Home Corp.	44.69	7.44	20.0
EDFY	22.13	4.88	Edify Corp.	6.69	0.09	1.4
XCIT	55.50	8.94	Excite, Inc.	41.00	14.13	52.6
SEEK	45.00	7.13	Infoseek Corp.	26.00	5.38	26.1
LCOS	53.63	9.81	Lycos Inc.	34.75	9.94	40.1
NSCP	44.50	14.88	Netscape Comm. Corp.	24.88	2.69	12.1
NSOL	58.00	11.75	Network Solution Inc	43.50	9.88	29.4
OMKT	29.13	8.50	Open Market Inc.	11.38	1.00	9.6
PEGS	31.00	10.75	Pegasus Systems	12.00	-0.50	-4.0
PSIX	21.94	4.25	PSINet	15.31	1.63	11.9
QDEK	3.38	0.25	Quarterdeck Corp.	0.91	0.50	123.1
SCUR	15.25	6.25	Secure Computing Corp.	10.63	2.06	24.1
SPYG	15.38	4.06	Spyglass Inc.	12.94	0.81	6.7
YHOO	125.38	17.13	Yahoo! Inc. (H)	118.00	26.94	29.6
Semiconductors						**UP 7.3%**
AMD	33.38	12.75	Advanced Micro Devices	20.25	2.44	13.7
ADI	39.63	12.94	Analog Devices Inc.	17.13	2.19	14.6
CRUS	17.75	6.00	Cirrus Logic	6.38	-1.19	-15.7
CY	16.94	5.50	Cypress Semiconductor Corp.	9.00	0.25	2.9
INTC	99.13	65.66	Intel Corp.	87.75	5.19	6.3
LSCC	74.50	23.44	Lattice Semiconductor (L)	24.94	0.22	0.9
LSI	33.75	11.50	LSI Logic Corp.	13.44	0.75	5.9
MCRL	46.88	21.38	Micrel Semiconductor Inc.	31.25	2.59	9.1
MU	38.94	20.06	Micron Technology	32.19	2.25	7.5
MOT	75.19	39.06	Motorola Inc.	47.63	1.00	2.1
NSM	42.88	8.00	National Semiconductor	10.06	1.06	11.8
RMBS	67.75	35.50	Rambus Inc	62.25	11.25	22.1
TXN	71.25	39.63	Texas Instruments	54.50	0.81	1.5
VLSI	38.38	7.00	VLSI Technology	8.31	1.25	17.7
XLNX	53.88	28.50	Xilinx	39.50	3.13	8.6
Peripherals and Subsystems						**UP 6.1%**
ADPT	54.25	10.13	Adaptec Inc.	10.81	-0.75	-6.5
APCC	37.69	22.13	American Power Conversion	36.69	0.56	1.6
ANDA	2.75	0.50	Andataco Inc.	0.81	0.06	8.3
CREAF	29.38	8.75	Creative Technology Ltd. (L)	9.50	0.06	0.7
RACE	9.63	0.50	Data Race Inc.	1.50	0.09	6.7
DTM	13.69	7.88	Dataram Corp.	11.88	0.25	2.2
EMC	63.50	23.50	EMC Corp. (H)	61.44	7.94	14.8
EMLX	19.75	5.31	Emulex Corp.	13.50	2.50	22.7
ESCC	35.88	13.69	Evans and Sutherland (L)	14.63	0.38	2.6
EXBT	12.75	5.00	Exabyte	6.88	1.81	35.8
IISFD	4.50	0.38	Intelligent Info. Systems	0.44	-0.03	-6.7
IOM	16.75	3.44	Iomega Corp.	4.31	0.19	4.5
KMAG	22.44	2.25	Komag Inc.	3.09	0.16	5.3
MTSI	31.00	10.88	Micro Touch Systems Inc. (L)	12.50	0.50	4.2
MTIC	17.88	3.31	MTI Technology Corp.	7.25	2.38	48.7
AQM	23.06	2.25	QMS Inc.	2.94	-0.06	-2.1
QNTM	43.25	10.81	Quantum Corp.	16.56	1.31	8.6
RDUS	7.50	1.06	Radius Inc. (L)	1.06	-0.31	-22.7
SEG	40.63	16.13	Seagate Technology	25.25	2.56	11.3
SOS	12.00	2.44	Storage Computer Corp.	2.50	-0.50	-16.7
STK	51.13	21.00	Storage Technology	27.63	5.31	23.8
TEK	48.19	15.19	Tektronix Inc.	16.00	-1.38	-7.9
WDC	50.88	8.00	Western Digital Corp.	10.94	0.56	5.4
XRX	116.50	66.19	Xerox Corp.	82.94	0.50	0.6
Services						**UP 4.0%**
AMSY	34.50	18.25	American Mgmt. Systems	28.13	-1.91	-6.3
ANLY	36.50	20.00	Analysts Int L	29.88	1.88	6.7
AUD	79.19	47.38	Auto Data Processing (H)	79.19	6.13	8.4
CATP	58.38	24.88	Cambridge Tech. Partners	28.56	-0.44	-1.5
CEN	64.50	35.25	Ceridian Corp.	59.81	3.44	6.1
CDO	23.25	12.44	Comdisco Inc.	15.56	1.06	7.3
CPU	38.00	11.25	CompUSA Inc.	20.00	1.63	8.8
CHRZ	53.50	20.00	Computer Horizons	27.38	0.06	0.2
CSC	74.88	33.63	Computer Sciences (H)	59.88	-5.25	-8.1
TSK	45.00	23.00	Computer Task Group	28.81	2.25	8.5
EGGS	29.13	5.50	Egghead Discount Software	8.16	1.59	24.3
EDS	50.88	29.56	Electronic Data Systems Corp.	34.06	-1.06	-3.0
ICO	39.63	15.63	Inacom Corp.	16.13	-1.13	-6.5
KEA	60.94	24.00	Keane Inc.	46.25	1.19	2.6
MICA	29.63	10.06	Microage Inc.	13.00	0.00	0.0
PAYX	48.81	22.44	Paychex (H)	46.16	1.66	3.7
PMS	48.38	29.06	Policy Management Sys.	40.25	-2.69	-6.3
REY	24.00	12.63	Reynolds and Reynolds	15.81	1.38	9.5
SAPE	62.00	23.88	Sapient Corp.	36.63	5.00	15.8
SCBI	14.75	6.38	SCB Computer Tech. Inc.	7.50	0.75	11.1
SEIC	80.50	31.88	SEI Corp.	68.88	0.47	0.7
SMS	86.50	51.88	Shared Medical Systems	56.00	0.88	1.6
SSPE	24.25	10.75	Software Spectrum Inc.	14.25	-1.00	6.6
SDS	40.00	22.44	Sungard Data Systems	36.25	1.94	5.6
SYNT	39.88	5.69	Syntel, Inc.	22.00	3.19	16.9
VST	16.75	7.13	VanStar Corp	10.19	0.38	3.8

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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Web mixes content, commerce

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make shopping more enjoyable. With many premier content sites already at least dabbling with commerce, industry watchers say the distinction between "information" and "commerce" sites is starting to narrow.

"I don't believe there is a difference," said Frank, who plans to turn Cybermeals' online ordering service into a major food-related Web site. That's because sites that started with commerce are adding content, and sites that started with content are adding commerce. Eventually, everyone will have both.

As a result, Frank said, "I think you're going to see a lot of people from the entertainment business figure that this is the next step."

Frank isn't alone.

■ Kmart Corp. this month launched a Family and Fitness shopping site hosted by supermodel Kathy Ireland and announced plans for "a virtual city of neighborhoods at kmart.com." This first Kmart "neighborhood" promises messages from Ireland, recipes, workout advice and live chat sessions, as well as products to buy.

■ CDnow, Inc., last year's top online music store with an estimated one-third of the market, hired *Rolling Stone* magazine contributing editor Anthony Decurtis to be its executive editor. "The store . . . can't just be a user interface on top of a database," said Evan Schwartz, director of product management. "The experience is what makes the sale."

■ Catalog retailer Lands' End, Inc.'s electronic-commerce site includes stories from naturalist Jim Fowler, co-host of the TV show *Mutual of Omaha's Wild Kingdom*, as well as updates on a "Viking Voyage" adventure retracing an ancient trip by Leif Eriksson. "Our customers love to travel, love to read," said spokesman Thane Ryland. "We receive hundreds of E-mails a day. . . . It helps build that relationship with a customer."

Catalog retailer Lands' End is adding content to its Web site by giving site visitors updates on a "Viking Voyage" adventure retracing the path of explorer Leif Eriksson

BEYOND CATALOGS

Others are expected to follow. "You're going to see much less of a catalog [list of goods for sale] online. That will not be the Web site of the year 2000," said Rob DeSisto, an analyst at Gartner Group, Inc. "Content is going to be the battleground."

But coming up with engaging news and entertainment can be a difficult and expensive proposition, analysts warned — particularly for merchants that can be viewed as less-than-objective sources of information.

"Without the proper execution, these sites become online infomercials," said Nicole Vanderbilt, an analyst at Jupiter Communications, Inc. in New York. "In addition, there is the danger of creating content without utility — a costly proposition that will not likely drive many transactions."

Some analysts said there are retail sites that could do better by scrapping irrelevant content and better focusing on selling products. Nevertheless, "as the market gets more crowded, strong content could be a good differentiator," Vanderbilt said. "The real question is whether or not merchants should partner for that content."

Online brokers have been among the most successful in turning content into commerce — a natural because information is so valuable to investors, said Barry Parr, an analyst at International Data Corp., a *Computerworld* sister company. Garden Escape, Inc. is often cited as an example of a merchant with useful content on its site.

And leading electronic bookseller Amazon.com, Inc. generally gets high marks for blending commerce with compelling content and community, including reader reviews and live chats, that can encourage surfers to buy more goods.

At Priceline.com LLC, a service based in Stamford, Conn., that offers consumers "name-your-price" shopping, there is little information for the airline ticket area — most customers already know their destination when they log on to the site — but quite a bit more for cars, said Vice Chairman Jay Walker. "We think content is important when it's appropriate," he said.

Walker likens the issue to real-world retailers, some of whom offer "shopping as entertainment" in specialty malls, while others, such as Wal-Mart Stores, Inc., stick to the basics of price, selection and service. "They're both right," Walker said. □

Mickey gets a portal

The Walt Disney Co. in Burbank, Calif., is finalizing plans for a major new entry in the Internet content arena, following its nearly $500 million stock deal with search engine maker Infoseek Corp., announced last June.

The Internet portal, to be called Go Network and located at *www.go.com*, will be jointly produced by the two companies as well as partners that include ABC News and ESPN. A "preview release" of the go.com site will be ready later this year, the companies said.

— Sharon Machlis

The service advantage

CONTINUED FROM PAGE 1

Associates Ltd., an outsourcing consultancy in Poughkeepsie, N.Y.

"What that usually means is not only providing a product, but managing a whole process around [the use of] it," primarily through the use of information technology, he said.

For example, LaCrosse, Wis.-based Trane Co., a $3 billion manufacturer of industrial air-conditioning equipment, also sells software and services to help customers design, install and maintain the systems. Trane, which started as a single plumbing shop 100 years ago, now bills itself as a "supplier of indoor comfort systems."

The bottom line, according to re-engineering guru Mike Hammer, is that product companies are integrating themselves much more closely with customers through new high-tech services.

"This is more than taking an IT system and turning it into a sideline," said Hammer, president of Hammer and Co. in Cambridge, Mass. "It's a way for product companies to differentiate themselves in a market where commoditization is one of the problems."

"We're at the beginning of a huge wave of [service] offerings," agreed Tony Friscia, an analyst at AMR Research, Inc. in Boston. "Any [product] company that's not looking to sell service through IT is going to be at a huge disadvantage. That's why you see leaders in their markets doing it now," he said.

GE, for example, will invest $200 million in services technology this year and another $400 million next year. By the end of next year, the company expects fully 70% of its $90 billion in annual revenue to come from services rather than products — up from about two-thirds today.

To accelerate that growth, GE earlier this year set up an IT-based services center of excellence where it aims to develop a "supermarket of service technologies." The Schenectady, N.Y., center is staffed with 17 systems engineers and other experts in artificial intelligence, data collection and communications technologies. Currently, more than 300 product service projects are under way, focusing on everything from remote monitoring and diagnostics of customer equipment to maintaining and upgrading non-GE equipment.

"Our view is that IT itself and support is the critical piece of our service business growth," said Dan Smith, manager of the new services center.

"Being able to sense equipment operation remotely and detect problems before a customer is even aware of them is one of the cornerstones of that growth," he said.

GE's plan, Smith said, is to apply the same remote diagnostic technologies it now uses in its aircraft and medical equipment divisions to its locomotive and power systems businesses.

At Goodyear, meanwhile, it is a 13-person IT group dedicated to the tire maker's materials management division that acts as systems integrator on supply-chain projects it takes on with wheel manufacturer Accuride, Inc. in Henderson, Ky.

"We go on a project-by-project basis. As we need to make modifications and changes, we pull resources out of this group and deploy them on that project," said Rick Adante, vice president of materials management.

Under a joint venture called AOT, Inc., Goodyear and Accuride furnish entire wheel assemblies, painted and ready for use, to Mitsubishi Motor Co. and Ford Motor Co. as well as Navistar. Those assemblies include Goodyear's or competitors' tires, depending on customers' specifications.

"Navistar had a long history with both companies and wanted us to supply not just tires and wheels, but mounted, painted, balanced tire-wheel assemblies to its facilities on a just-in-time basis," Adante said.

"But one of the first issues we ran into was integrating all three companies' systems," he said. Ultimately, Goodyear's IT group came up with a proprietary AS/400-based materials requirements planning system. Navistar electronically ships its orders to the system, which processes and sequences them for delivery by AOT to Navistar's Springfield, Ohio, truck plant. Adante said Goodyear also is deploying the system at a plant in Talbotville, Ontario, about an hour away from a new Navistar truck assembly plant.

Adante declined to break out revenue for the joint venture. "But put it this way," he said, "there's no way this company and Accuride would invest the money we've invested in these service facilities if it didn't make good sense."

What's more is that thanks to IT, "we're making money on the service that we provide putting our competitors' products together," he said. □

'See, Judge, Win 95 is like a car...'

CONTINUED FROM PAGE 1

public rhetoric since the suit was filed in May [CW, May 25].

Though much of it helps to demystify sometimes very technical issues, the goal is to influence not only public opinion, but also U.S. District Judge Thomas Penfield Jackson, legal observers said.

For example, in a hearing early this month about whether any part of the case should be dismissed, Jackson questioned Microsoft lead attorney John Warden, groping for a simple way to understand Microsoft's reasoning for melding its Internet Explorer browser with Windows.

Jackson wanted to know whether a carmaker that also made transmissions could require companies to buy both products.

"Campbell's doesn't have to permit the reblending of its soups," responded Warden, a trial lawyer at Sullivan & Cromwell in New York.

A PLACE TO START

"The easiest thing for a judge to do is find something he understands to hang his hat on," said Michael Scott, a lawyer at Hosie, Wes, Sacks & Brelsford in Menlo Park, Calif.

"So much of [technology] cases hinges on analogies that it's kind of scary," he said.

A judge latching onto the wrong analogy is dangerous in a system of law where other jurists rely on past decisions to help guide them, said David Sorkin, a professor at John Marshall Law School in Chicago.

Scott pointed to a now-infamous case filed in 1984, *Whelan Associates, Inc. vs. Jaslow Dental Laboratories, Inc.*, in which it was debated whether and to what extent software could be copyrighted (see chart). The judge in that case adopted an analogy that software was like a book — it can be fully copyrighted. Judges in several subsequent trials harshly rejected that idea. "But it took four or five years and 10 or 15 cases before it became an interesting footnote," Scott said.

ANALOGY ANGST

Analogies used in some computer lawsuits to explain technology:

- **An online service provider is like . . .**
  - . . . **a bookstore, where the content is the responsibility of users, not the provider** *(Cubby, Inc. vs. CompuServe, Inc., 1991)*
  - . . . **a newspaper, where editors filter content** *(Stratton Oakmont, Inc. vs. Prodigy Services Co., 1995)*
- **A software program is like . . .**
  - . . . **a book, where the entire work is a copyrightable expression of a single idea** (1987 U.S. Court of Appeals ruling in *Whelan Associates, Inc. vs. Jaslow Dental Laboratories, Inc.)*
  - . . . **a machine, where some parts can't be copyrighted because they are so basic** (1992 U.S. Court of Appeals ruling in *Computer Associates International, Inc. vs. Altai, Inc.)*
- **The World Wide Web is like . . .**
  - . . . **a library, with the free flow of ideas** (A 1997 U.S. Supreme Court ruling in *Reno vs. American Civil Liberties Union)*
  - . . . **a broadcast medium, which calls for government regulation** (U.S. government argument in *Reno vs. ACLU)*

Source: *Computerworld* research

"From a cynical perspective, you can create an analogy to anything you want and hope the judge buys it," Sorkin said.

The car is a common comparison in technology cases and one that might work for Microsoft, according to Jay Westermeier, an attorney at the Washington office of Fenwick & West LLP, a firm that specializes in computer law.

"You want something familiar, and you say, 'This is like selling software without this or that part of the car,' " Westermeier said. Microsoft contends that, contrary to government assertions, Windows and the Internet Explorer browser are an integrated product and that one is necessary to the full functioning of the other.

Government lawyers, Scott speculated, may go for an analogy that echoes past antitrust cases: that of railroads. They could argue that Microsoft, with its substantial power in PC operating systems, is like a railroad "that can create a bottleneck that everyone has to pass through," he said.

The Justice Department and Microsoft both declined to comment on their legal strategies. □

NT to gain COM middleware

By Sharon Gaudin

MICROSOFT CORP. plans to integrate its new COM+ middleware technology into Windows NT 5.0. That will put more transaction capabilities in the operating system so they don't have to be built in to the applications.

Karen Boucher, vice president of Standish Group International, Inc. in Dennis, Mass., said building the so-called plumbing of the application is considered gruntwork and often takes up to 70% of development time.

COM+ is Microsoft's latest update to its Component Object Model architecture, which acts like an electronic bus that moves information between clients and servers. COM+ was designed to help developers by removing the need to write basic infrastructure code, such as database access and message queuing, because it already exists in the middleware itself.

Microsoft had never announced which operating system would ship with COM+, which isn't a stand-alone technology.

COM+ will be fully integrated into NT 5.0 by the time of the third beta release, according to Vic Gundotra, Microsoft's director of platform marketing. A preview CD of COM+ was shipped with Beta 2 of NT 5.0, but it wasn't integrated into the operating system.

Gundotra said the official announcement would be made at the company's Professional Developers' Conference in Denver next month. □

DOJ zeros in on Java; legal impact debated

▸ *Microsoft reportedly strong-armed Intel*

By Kim S. Nash
and Sharon Gaudin

AS THE JUSTICE DEPARTMENT juices up the Microsoft antitrust case by collecting memos, E-mail and other documents about Java, observers are split on whether the material helps or hurts the government's position.

Meanwhile, Microsoft Corp. rejected a theory broached in one published report last week that the company acquired companies, signed partnerships and strong-armed Intel Corp. into dropping a Java project in order to inhibit Sun Microsystems, Inc. from getting Java out.

"It is not realistic," a Microsoft spokesman said.

"The whole premise [was] piece[d] together . . . on leaked documents," the spokesman said. "Our strategy behind any of our acquisitions or partnerships is to complement our current products, to help customers."

"It was some kind of leak" of evidence related to Sun's lawsuit against Microsoft over alleged Java license violations, said a Sun spokeswoman of the E-mail referenced in the report. "But I have yet to find anyone who knows" how it happened, she said.

INTEL STAYS NEUTRAL

Intel declined to comment on whether Microsoft had influenced its decision to cancel its Java project. "We have not taken a position between Justice and Microsoft, and to make a comment would be to take sides," a spokesman said.

In a recent — rejected — motion to limit the scope of the trial, Microsoft complained that the U.S. Department of Justice was improperly expanding its case by asking for, among other things, internal documents about its Java plans and meetings. The Java documents have "nothing to do with" the government's antitrust case, the Microsoft spokesman said. "It's an effort to rewrite the [antitrust] case."

Though the Justice Department declined to comment on what kind of information the agency has requested from Microsoft, a spokeswoman said the material "pertains to our basic claims" in the May antitrust lawsuit filed jointly with 20 states. The suit accuses Microsoft of abusing monopoly power in the PC operating systems market and using illegal methods to maintain that power.

"The government apparently has a lot of bad facts that place Microsoft in bad light. [Microsoft CEO] Bill Gates is being portrayed as a power-monger," said Jay Westermeier, a lawyer and partner at Fenwick & West LLP in Washington.

MONOPOLY FOCUS

Gathering evidence about Microsoft's behavior regarding Java shows that the government is now focused on its charge that Microsoft has illegally maintained its monopoly power, said Rich Gray, an antitrust and intellectual property lawyer at Bergeson, Eliopoulos, Grady and Gray LLP in San Jose, Calif.

"[That issue] wasn't the big focus in the beginning, but it was in the suit," Gray said.

Selected Microsoft E-mail recently released in Sun's contract dispute suit filed against Microsoft last October shows that Microsoft added "extensions" to its implementation of Java to make it work better on Windows. Sun contends, and Microsoft denies, that this violates Microsoft's Java license.

Larry Podmolik, chief technical officer at Strategic Technology Resources, a consulting firm in Chicago, said that though it appears Microsoft has violated a 1996 Java license signed with Sun, it will be harder to prove an antitrust claim.

For example, Microsoft argues that its moves in the Java market were to benefit customers by making its implementation of Java work smoothly on Windows. Showing a user benefit was key to a June ruling from the U.S. District Court of Appeals that was favorable to Microsoft [CW, June 29]. □

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The Back Page

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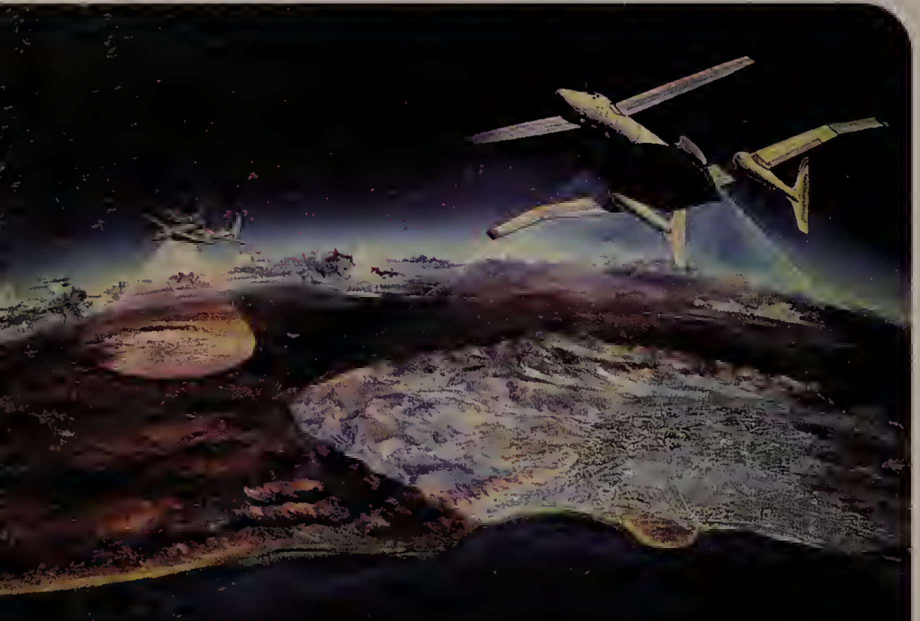
Dispatches & images from the fringes of the electronic frontier



FLYING IN CIRCLES

The networking boom is leading engineers to consider some far-fetched alternatives to satellites – such as a stratospheric network of data blimps and planes that fly in endless circles. Angel Technologies Corp. in St. Louis plans to use a tag team of modified U-2 spy planes to fly in circles over major cities to deliver cellular phone and wireless Internet service at 10M bit/sec. The coverage "cone" for each plane, which acts like a flying cellular phone tower, would be 50 to 75 miles in diameter.

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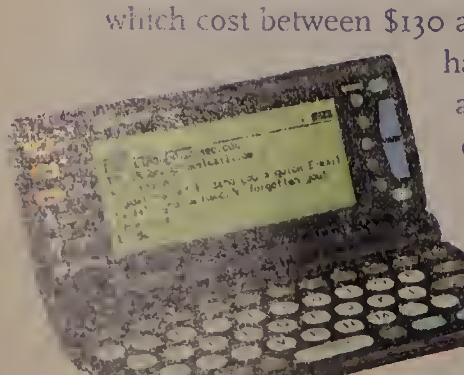
Babies produced so far:	16
Hackers Janet Reno wants to hire to test Justice Department systems:	16
U.S. political campaigns that have a Web site:	63%
U.S. political campaigns that send mass E-mail to voters:	11%
U.S. Defense Department mission-critical systems that are year 2000-compliant as of last month:	1,236
Systems still to be repaired or replaced:	1,705
U.S. executives who feel "submerged by the number of messages received each day":	42%
Internet users who viewed the Starr report online the day it was released:	15%

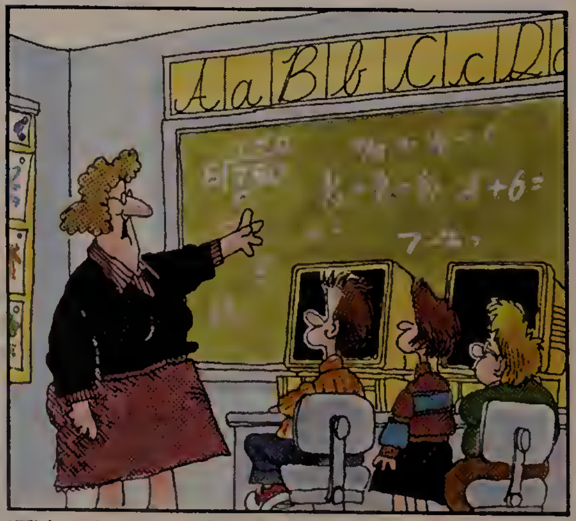
Sources: Match.Com, San Francisco; *BusinessWeek*, New York; *Campaigns & Elections*, Washington; *Federal Computer Week*, Falls Church, Va.; Pitney Bowes, Inc., Stamford, Conn.; Alexa Internet, San Francisco

E-mail for pay phones

Can't find a telephone jack? PocketScience, Inc. in Santa Clara, Calif., has developed PocketMail technology, which lets you hold an E-mail appliance against any telephone handset to send and receive messages. The handheld devices, which cost between $130 and $150, have a built-in acoustic coupler on the back. The network charge is $9.95 per month.



THE FIFTH WAVE *by Rich Tennant*



"This afternoon, I want everyone to go on line and find all you can about Native American culture, history of the old west and discount air fares to Hawaii for the two weeks I'll be on vacation."

E-Mail Rich Tennant at the5wave@tiac.net

Inside Lines

Climbing toward zero hour

The federal government's price tag for fixing its year 2000 problem is on the rise. A soon-to-be-released General Accounting Office report will peg the bill at $6.3 billion, according to U.S. Rep. Stephen J. Horn (R-Calif.). That's up from this summer's $5.4 billion estimate by the Office of Management and Budget. Horn told a Discovery Institute year 2000 conference in Washington last Thursday he expects the tab eventually to climb to $10 billion or more. "As you get toward Jan. 1, 2000, you'll start panicking and the cost of human resources to do the job will start escalating almost geometrically," he warned.

Read it there first

Canadian steelmaker Algoma Steel decided employees were filling out so many year 2000 readiness surveys for customers that it might just as well put the information on its Web site (*www.algoma.com/general.html*) for the whole world to see. "We don't want to spend all our time answering surveys," said IS manager Charles Whitfield. "We want to solve the problem." Concerned customers now get a letter with a printed copy of the survey and directions to the Web site, where the 18-question survey (courtesy of the Automotive Industry Action Group) will be updated about every six months.

Get naked now on the 'net

It's the perfect time to visit tropical Niue, a South Pacific island barely larger than Washington, D.C. Niue is home to 1,708 inhabitants, 276 telephones — and almost 20,000 Internet domain names, according to .NU Domain Ltd., the Sherborn, Mass., company that registers top-level domains ending in .nu, the abbreviation assigned to Niue. Why is the virtual population of Niue, which gets much of its income from selling postage stamps and domain names, 20 times the size of the real thing? We're not sure, but here's a clue: "nu" means "now" in German, Swedish and Danish — and "naked" in French.

Would-be Microserfs get stock-smart

Stock options are crucial to attracting people to work at Microsoft. "A lot of people wouldn't work here for what we pay them in current compensation [alone]," said Greg Maffei, chief bean-counter. If Microsoft took stock options away, it would have to pay people two to 10 times more to make up the difference, he said. Compensation — and how Wall Street continues to inflate Microsoft's valuation — is "a huge, overarching issue we think about constantly," Maffei said. "We have had cases where recruits have said, 'I don't think there's as much upside to Microsoft stock' and then want to go to a smaller company."

Why buy online?

Companies backing the Open Buying on the Internet (OBI) standard swapped horror stories of their worst nonelectronic-ordering disasters last week in Los Angeles during a break from their quarterly OBI Consortium meetings. Our favorite: Pharmaceutical company Hoffman-La Roche wound up with a truckload of the white "bunny suits" that workers wear to preserve clean-room environments. That was enough suits to dress every employee at the Nutley, N.J., facility for four years — even the ones who don't work in clean rooms, said Melissa Campbell, Roche's electronic-commerce project manager. "We accepted half the shipment," she said, which they still will be using well into the new millennium.

Ray Noorda really does believe in cross-selling, it seems. The man who built Novell and founded Linux vendor Caldera also owns more than a dozen automobile dealerships in his home state of Utah. Result: One reporter trying to get a comment from Noorda on Microsoft's antitrust troubles suddenly found herself on the receiving end of a pitch to buy a new car. News editor Patricia Keefe isn't looking for a new set of wheels — just your news tips and tidbits. Send them her way by E-mail at patricia_keefe@cw.com or call (508) 820-8183.

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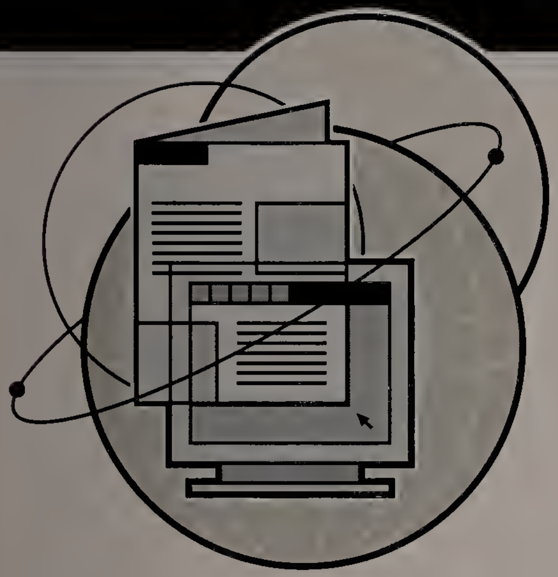

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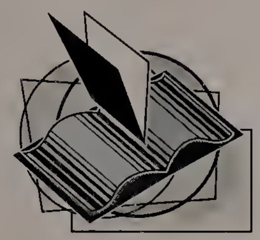

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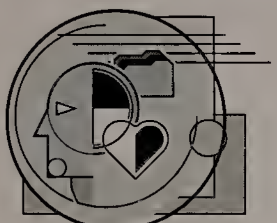

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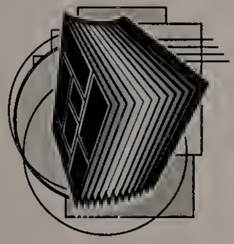

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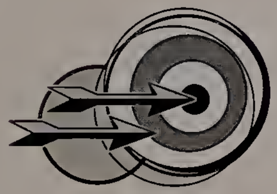

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ISSUE DATE	AD CLOSE	EDITORIAL FEATURES
October 12	October 2	**QuickStudy** Biometrics
October 19	October 9	**Review Center** Network and Systems Management Suites: How well are management suites addressing the priorities and needs of users? **QuickStudy** Internet Service Provider
October 26	October 16	**QuickStudy** CORBA
November 2	October 23	**Review Center** Internet-Based Training: What tools are available to support Web-based training, and how do they compare to training companies' offsite offerings? **QuickStudy** IMAP
November 9	October 30	**QuickStudy** Kernel Technology
November 16	November 6	**Review Center** Annual Customer Satisfaction Survey on PCs and Notebooks. **Annual Skills Survey** **QuickStudy** PC distribution channels
November 23	November 13	**QuickStudy** XML
November 30	November 20	**Review Center** Cool Stuff: Reviews of the latest innovative gadgets and products to help you do your job. **QuickStudy** OLAP
December 7	November 25*	**QuickStudy** Merced
December 14	December 4	**Review Center** Server Operating System: NT vs. Unix vs. Netware. **QuickStudy** Euro Dollar
December 21	December 11	**QuickStudy** Universal Serial Bus
December 28 January 4	December 18	**Annual Forecast Issue** An examination of the technologies and issues that will impact corporate IT in 1999 **Annual Hiring Outlook** A survey that tracks which regions, industries and technologies will present IT job opportunities in 1999 **QuickStudy** Clustering Technology

Trade Show Distribution

October 19 Issue Networld+Interop, Atlanta, 10/21–10/23
November 16 Issue Comdex Fall, Las Vegas, 11/16–11/20

*Please note early advertising close due to Thanksgiving Day holiday.
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